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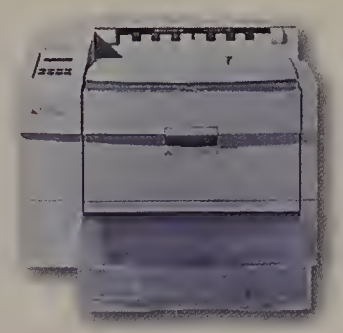

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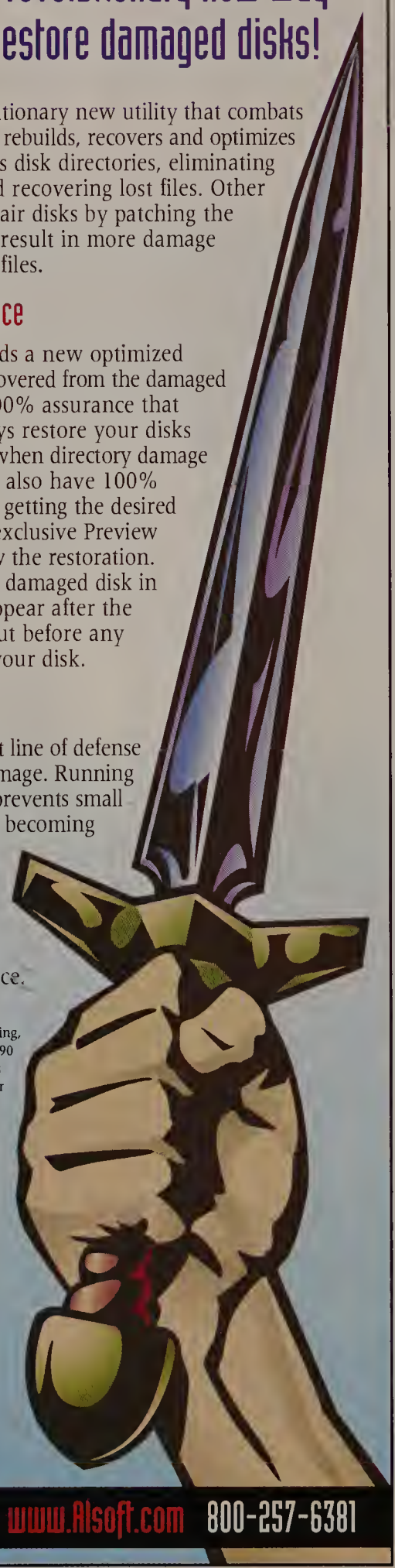

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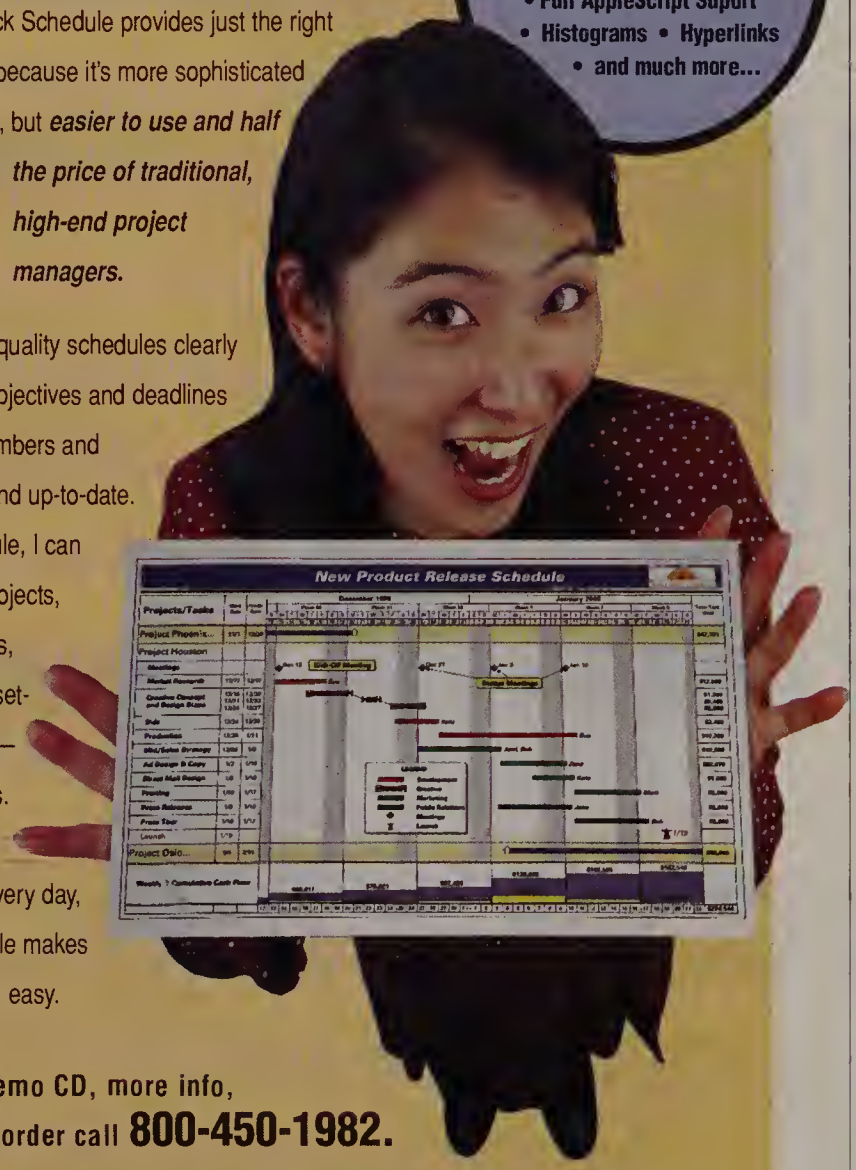

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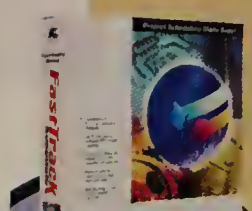

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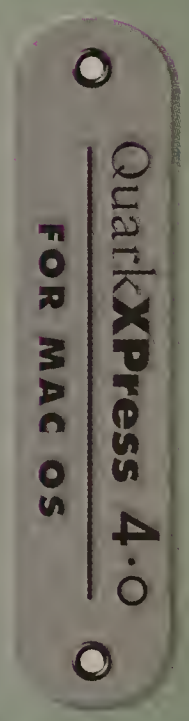

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APRIL 1999

Letters

On the Road

IN HIS ESSENTIAL EXTRAS FOR THE PowerBook G3 ("Road Gear," January 1999), Stephan Somogyi noted that unless you own the PowerBook G3/300, you'll need to get the DVD-Video Kit from Apple.

I've had an order in for a DVD-Video Kit since July 1998. My local Apple dealer has received zero kits. I've been round and round with Apple's customer relations, all to no avail. The bottom line is, if you already have your PowerBook, forget about getting a DVD-Video Kit. You'd be better off returning your existing machine and purchasing new, because the only way you are going to get the kit is to buy one of the high-end machines that includes it.

CHRISTOPHER RANTS
Sioux City, Iowa

IN "ROAD GEAR," YOU MENTION THE wireless modem service of Metricom's Ricochet but miss the best part. Ricochet works in many airports, in addition to the areas it officially covers. By staying at a hotel close to an airport, I always have access to the Net without any hassles. I used to run an ISP, and I know—Ricochet is a very good ISP.

MARK SHAPIRO
San Jose, California

Ricochet does work in several airports. For a full list of coverage areas, go to www.ricochet.net /coverage/citylist.html.—Ed.

PowerBook Blues

I FOUND MANY OF THE TIPS IN David Pogue's "Survival Skills" very interesting (January 1999). At one point he says there is never any need to shut

down the PowerBook between routine uses. While this is theoretically true, I have discovered some problems with the sleep feature. Often, when the PowerBook is reawakened for the second or third time, I run into memory problems, slower processing, more frequent freeze-ups, and control-strip malfunctions. Overall, the PowerBook G3 has not met my expectations for performance and often does not meet my modest needs.

JONAH VICTOR
Bloomfield Hills, Michigan

Share More

SERIOUS SHAREWARE" ONLY SERVES as a reminder that *Macworld* should regularly cover shareware, since it is such an important part of the Macintosh experience (January 1999). I suggest that you make shareware coverage a monthly feature. I am sure every reader will be disappointed that some favorite item was not covered (although previous issues have mentioned many shareware applications and utilities in passing). Outside such indispensable interface enhancements as FinderPop, GoMac, Kaleidoscope, and Window Monkey, my favorite is the PIM Consultant, which is so sophisticated it could easily be marketed as a commercial product.

DANA SUTTON
Corona, California

We love shareware and agree that it is worthy of as much coverage as it can get. However, until someone finds a way to download shareware by clicking on paper, the Internet is still the ideal medium for shareware coverage. :-) That is why we maintain the www.macdownload.com site (through ZDNet), which is loaded with reviews of shareware products.—Philip Dyer

Making the Grade

I READ DEKE McCLELLAND'S REVIEW of Illustrator 8 (*Reviews*, January 1999) and was surprised to see in the summary, "Cons: Gradient Mesh tool is more sizzle than substance." Maybe it needs more control, but I think it is the best tool I have ever seen in 2-D design. What it can do is very impressive and high-quality. In addition, some effects are quicker with this tool than with the previous gradient.

BERRY FARAH
Montreal, Quebec, Canada

NUM-ing Upgrade

I COMPLIMENT STEPHAN SOMOGYI on his review of Norton Utilities for Macintosh 4.0 (*Reviews*, January 1999). It was thorough, fair, and deservedly critical.

I've relied upon Norton's software since

continues

JEFF NEUMANN

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my first Mac purchase five years ago, and I have always found it strong and reliable.

But that changed with my upgrade to version 4.0. Merely opening the program freezes or crashes my PowerBook 1400. Norton hasn't been able to suggest how to get the program to even run. Somogyi hit the nail on the head in stating that this release was not yet ready for sale.

TERENCE A. TUNGSETH
Los Angeles, California

Into Intuos

DEKE MCCLELLAND'S REVIEW OF the Wacom Intuos (*Reviews*, January 1999) described its innovative new axial rotation, simultaneous multiple pointing devices, tool memory, zoom, combination buttons, and ergonomic design (am I forgetting anything?), then marked it down because current software doesn't yet support all of its newest features and its driver isn't compatible with older tablets. This is like docking Sherlock because most Web sites' search engines don't support it. Come on! All other reviews of the Intuos I've read give it excellent marks.

GAGGAN BOPARAI
Pittsburgh, Pennsylvania

The Missing Link

AS CHRISTOPHER BREEN NOTED, MacLinkPlus Deluxe has room for improvement (*Reviews*, January 1998). If MacLinkPlus Deluxe wasn't like the opposite sex (can't live with it, can't live without it), it would be easier to take. When is someone who understands Macs going to work for DataViz? Apart from the problems Breen pointed out, there are several others, ranging from annoyances to serious problems. For instance, AppleWorks 5 isn't supported, and the program crashes regularly on Word files. I'm thinking of divorcing version 10 and going back to my old flame—version 9.7.

DAVID CROWE
via the Internet

Remember the Faithful

WHY IS THERE NO SERIOUS COVERage of high-end programs such as Newtek's Lightwave 3D? I appreciate David Biedny's fondness for Electric-Image Animation System 2.8 (*Reviews*, January 1999), but that is not the only high-end 3-D program on the Mac!

In general, *Macworld* doesn't seem to bother with high-end applications. The iMac is here—we *know* already. I understand that you want to pick up all the new members of the Apple family, but you must remember who else is reading your magazine. A lot of us are trying to push the envelope a little, and we would like to stay on the Mac platform.

SCOTT DAVIS
New York, New York

Game Options

PHILIP DYER FORGOT ONE OTHER low-cost option for playing PC games—the low-end PC (*The Game Room*, January 1999). Especially when compared with the cost of Orange Micro's "solutions," you really come out ahead. Right underneath my copy of *Macworld* is a pile of PC ads and catalogs that have 200MHz to 300MHz PCs for under $600! A good PC box and an A/B monitor switch work great for my job, where I constantly encounter both platforms. We tried the Orange Micro cards and, for the money, we were sadly disappointed.

JAY DREW
Valparaiso, Indiana

I'VE ALWAYS BEEN JEALOUS OF THE variety of titles available for Windows. As Philip Dyer points out, PC emulation—using software or hardware—is slow and expensive.

There's another, hidden problem with PC emulation: it reduces the incentive for game companies to make Macintosh versions of their games. Why hire Mac-savvy programmers and pay more production costs if the Mac users are buying the Windows versions? PC emulation is fine for translating an occasional spreadsheet, but if we use it as a long-term solution to gaming, Mac-native games will always be too little, too late, and too slow.

The Mac just isn't a gaming platform. Why make a silk purse from a sow's ear? Either bite the bullet and buy a full-fledged PC, or save yourself a thousand bucks and get a game console.

ARTIE MOFFA
Amherst, Massachusetts

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Put the 'Book Back

CANADA'S NEW NATIONAL NEWSpaper, *National Post*, launched October 26 using Macs from end to end.

Our executive editor gave every reporter a choice: we could take either a desktop or a PowerBook.

After wrestling with the choice, almost every reporter here, including me, went with the desktop. Yes, it would be convenient to take the PowerBook home, but it would be a hassle to plug in the power cord and hook into the corporate network every day.

The desktop's full-size keyboard is still more comfortable than a portable's, and a 17-inch monitor is still a lot more screen real estate than a PowerBook offers. And while the TrackPad is a great pointing device, I've yet to find the person who prefers it to a good old-fashioned one-button mouse.

Portable computing devices, including the PowerBook, may one day free us from our desks. Here in Toronto, though, reporters of *National Post*, when given the chance to be free, decided to stay down on the cubicle farm.

DAVID AKIN
Oakville, Ontario, Canada

Letters should be sent to *Letters*, Macworld, 301 Howard St., 16th Fl., San Francisco, CA 94105; via fax, 415/442-0766; or electronically, to letters@macworld.com. Include a return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*.

CORRECTIONS

To clear the RAM disk on a PowerBook, press ⌘-option-P-R ("Survival Skills," January 1999).

In "Comin' at Ya" (January 1999), the captions for Micro Conversions' Game Wizard and ATI Technologies' Xclaim VR 3-D accelerators were reversed. Also, Tomb Raider II needs Rage II or better for RAVE to work, not Rage Pro.

In the infographic "The Lay of the Land" ("Road Gear," January 1999), the VGA-out and S-Video–out labels on the PowerBook G3 were reversed. m

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all of their graphic
elements in one place."
Digital Design & Production – Jan./Feb., 1999

Canvas 6 delivers power and versatility at a competitive price."
eMediaweekly – Jan., 1999

elegant and relatively inexpensive tool."
PC Magazine – Jan., 1999

But these experts beat us to it.

"Canvas 6 is sure to please faithful users... Canvas continues to deliver a vast scope of graphics tools in one convenient application, and does a remarkable job of breaking down barriers between bitmap and vector graphics."
PC World Online – Dec. 28, 1998

"Canvas 6's array of new transparency tools allow you to create awesome depth and layering in your images – and it does so better than other graphics products on the market today."
MacAddict Magazine

"Canvas is a mature standalone graphics application that skillfully integrates its separate components, including raster-image editing, vector illustration, text layout, Web graphics production and a huge clip-art library."
Windows Magazine – Mar., 1999

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Maximum PC – Jan., 1999

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Macworld – Mar., 1999

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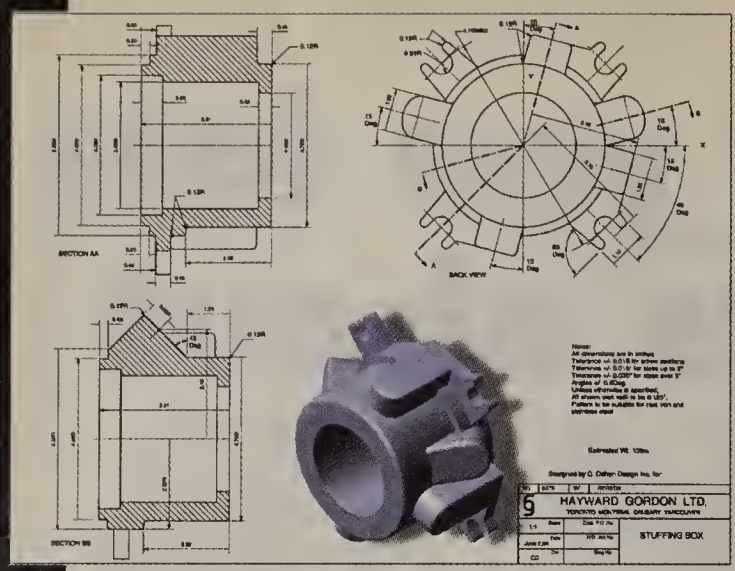

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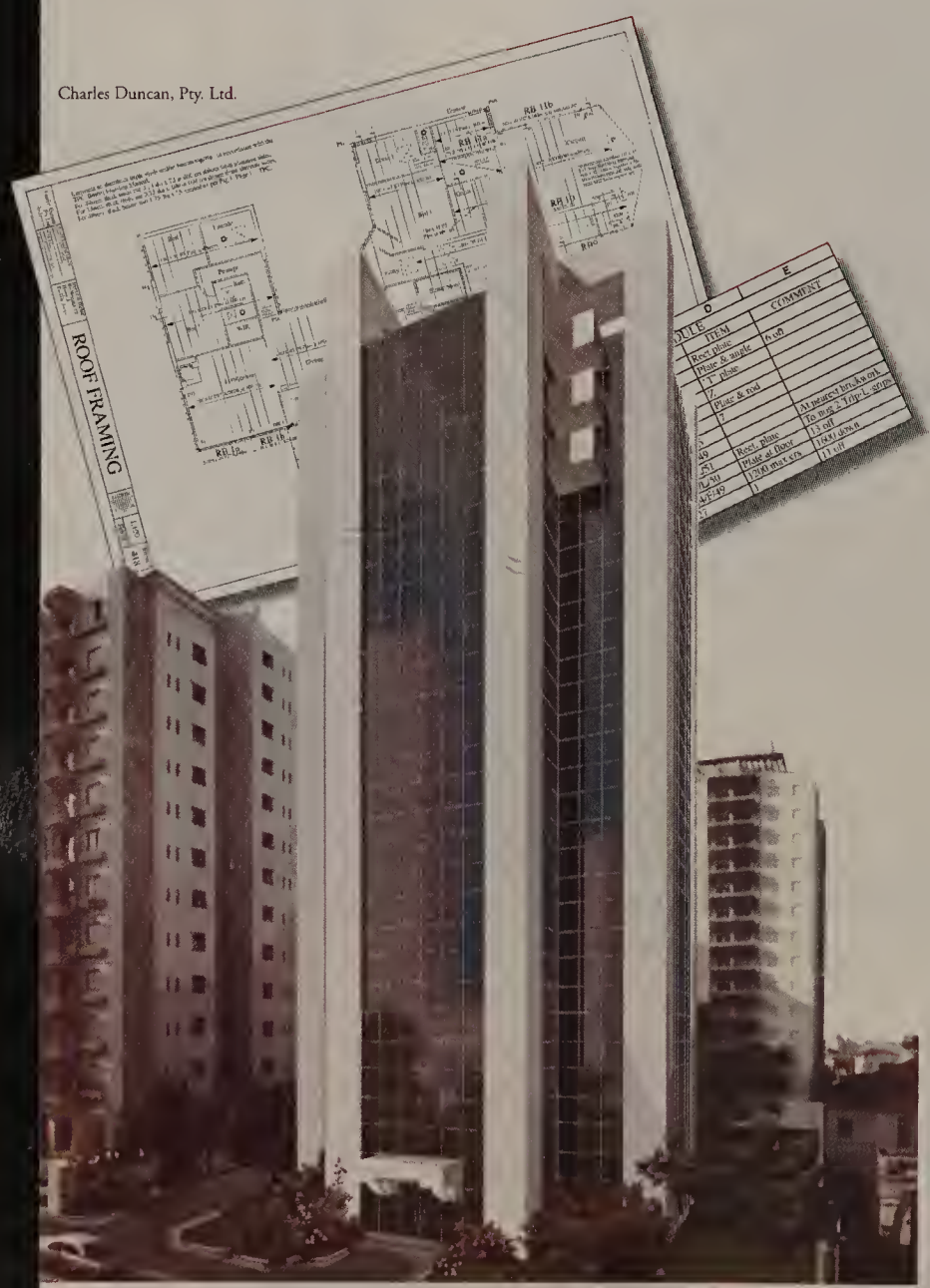

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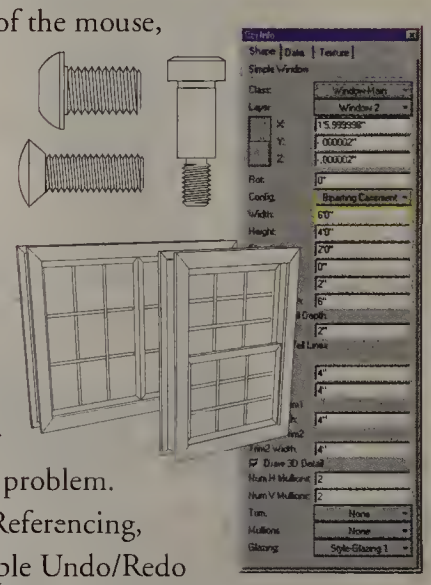

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by Andrew Gore

Bargain Hunters, Beware

WITH A LITTLE COMMON SENSE, YOU CAN SHOP THE WEB SAFELY

IF YOU'VE EVER BEEN IN midtown Manhattan, you've probably seen the Going Out of Business businesses. You know: "Lease Expired! Closing After 20 Years! Our Loss Is Your Gain!" Banners like these are spread across the windows of dozens of little shops, declaring unbelievable discounts. Of course, most of these shops have been going out of business for a decade or more. In fact, the only thing you're less likely to find in New York than a polite cabbie is a Going Out of Business business that actually has. And as for those big discounts, it's true you can save 50 percent or more—if you don't mind that the original price was double the normal retail price. These stores bank on the gullibility of casual consumers, impulse buyers, and tourists. Only in New York, right?

Caveat Emptor

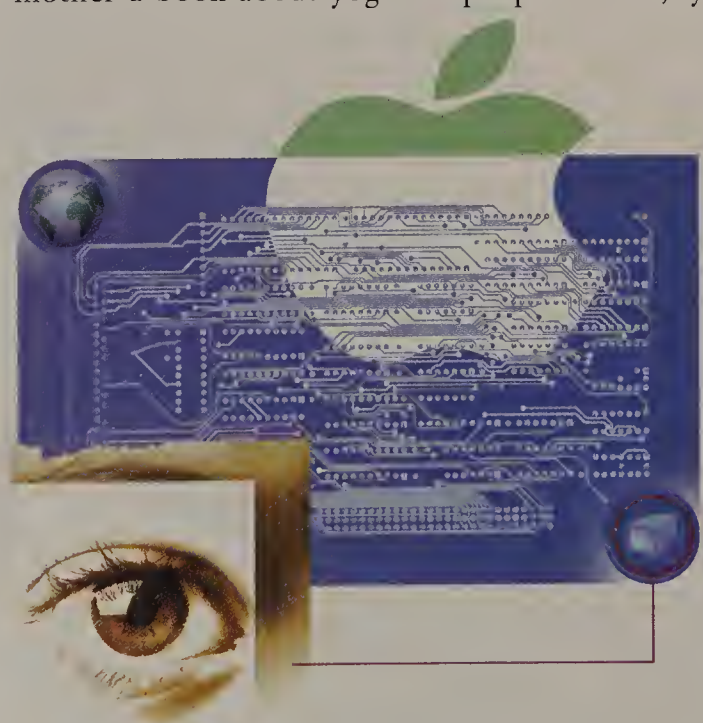
As it turns out, the Internet has proved to be fertile ground for its own unique breed of hucksters. With just a little bit of pocket money, a savvy designer, and a Web server, anyone can set up an electronic storefront that looks slick, professional, and credible faster than you can say *Ponzi scheme*. Internet newsgroups are bulging with stories of Web merchants who have overcharged customers, not delivered products as promised, or just plain taken the money and run.

Even with the Web's honest operators it can still be hard to know if you're really getting the best deal. It's amazing how many Web sites claim to have the lowest prices for a particular item. Let's say you're trying to buy a copy of *The Truman Show* on DVD. First you check out Amazon.com and find your DVD in stock for $20.99—about 30 percent off the retail price. Not bad, but at VideoBuy.com it's only $14.99.

And even at that kind of price, the Web's not necessarily a bargain. None of these discount prices include shipping and handling or taxes. At VideoBuy.com and Amazon.com that's an extra $4.95. That can kill your savings in a hurry.

Of course, all this assumes that the products you want are in stock. Suppose you're ordering several DVDs, and one is on back order. You have two choices: wait several weeks for that one title to arrive, or split your order in two parts and pay separate handling charges for each.

And just because all this shopping is being done via computer, don't assume there's no opportunity for human error. I've ordered products that weeks later I was told never existed. This past Christmas I used Amazon.com to buy my mother a book about yoga for people over 50. The company shipped her a book on modern architecture, complete with festive holiday gift wrapping.



To its credit, Amazon.com quickly shipped her the correct title and credited me the shipping charge. But still, imagine my mother's surprise when she unwrapped her Christmas present.

Tips for Safe CyberShopping

Now, you might think I'm down on Internet commerce. I'm not. What I *am* down on is the unqualified enthusiasm with which buying over the Net is being pushed these days. I believe shopping on the Web is a good thing, since it gives busy consumers another way to save time and money, but it's good only when used wisely. To help you avoid some of the pitfalls I've run into, here are five tips:

1. Size Matters For now, it's too hard to tell the good guys from the bad, so stick with the big-name sites, unless you know someone who's already had a good experience with a no-name vendor.

2. Research Go to a good newsgroup site, like DejaNews, and do a search on the name of a site. If you find 10,000 messages that start off with "Boy, these guys stink," you may want to shop elsewhere.

3. Shop Around Even among the major brands there can be a real difference in price. And don't forget to figure in the shipping charges!

4. Start Small Keep your first purchase from an unfamiliar site relatively inexpensive. This way, if you get stuck, you won't be out much money.

5. Click "No" When in doubt, just click "no." You can always come back later and pick up where you left off, hopefully with a higher comfort level.

Take these few commonsense precautions, and you increase the odds that your online buying experience will be a good one. It amazes me that while people will obsess over sending their credit-card number over the Web, they won't give a second thought to the much more likely possibility that what they order will come late, broken, or not at all.

Oh, yes, and one final tip: just like those Going Out of Business come-ons, if a deal seems too good to be true . . . it is. **m**

Has Andy got a deal for you: send him your comments at visionthing@macworld.com, and he'll read them—no charge!

JOHN RITTER

Happy
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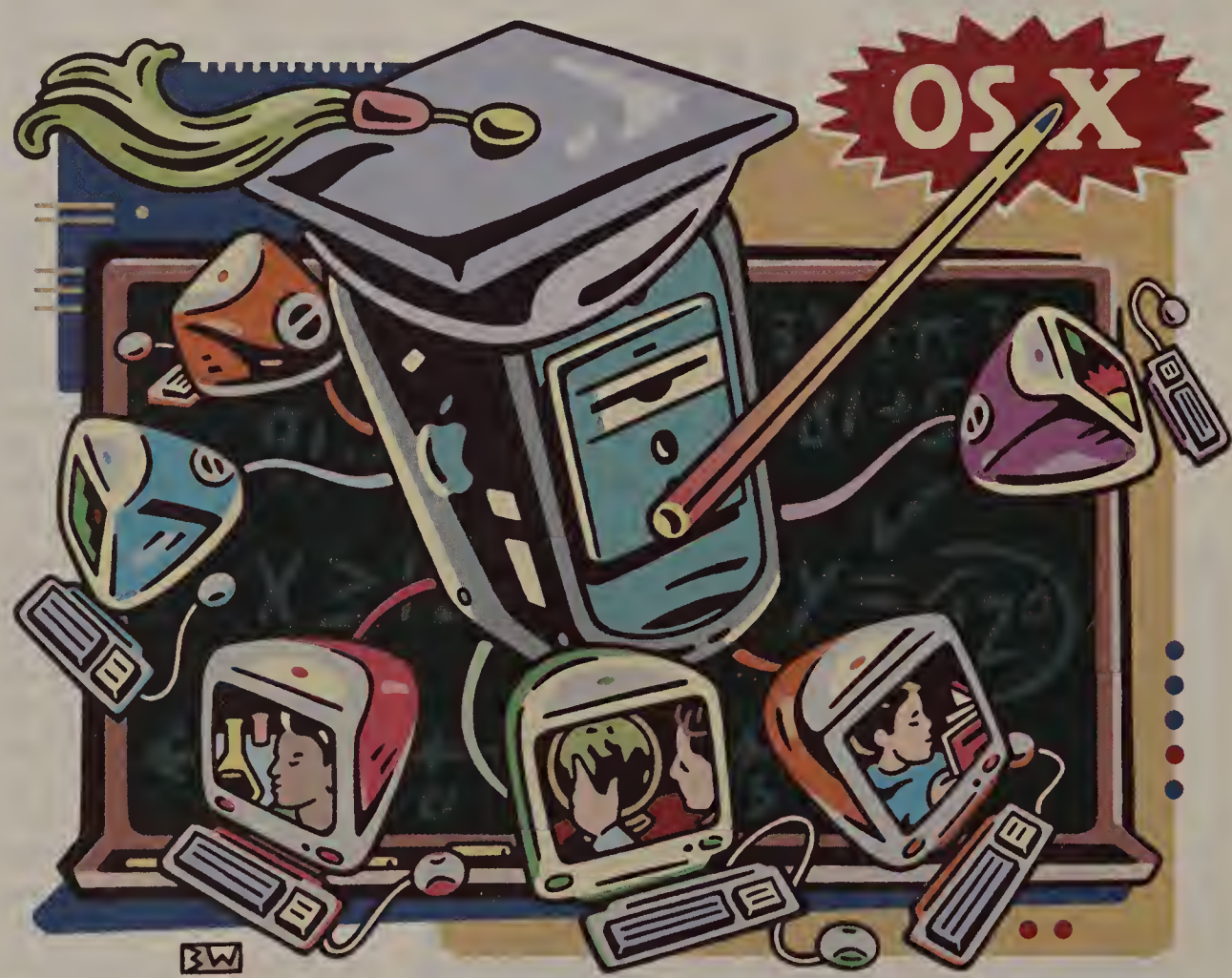
News

systems

Apple Introduces OS X Server

NETBOOT FEATURE LETS MACS SHARE SYSTEM FILES, APPLICATIONS

by Stephen Beale



BRYAN WIGGINS

The scene during Steve Jobs's Macworld Expo keynote was impressive: a network of 49 iMacs, mounted in a grid of metal racks, each running a QuickTime movie from the same server. It was a dramatic demonstration of NetBoot, a feature in Apple's new Mac OS X Server that allows multiple Macs to be booted and configured from a single machine.

NetBoot comes close to fulfilling the dream of a network computer: cheap PCs that share applications, data files, and other resources stored on a powerful server. You don't even need a hard drive or any other local storage on your Mac. Instead, the Mac boots from a partition on the server, which you also use to store your documents and system preferences. On a fast network it should be nearly transparent: you might have to enter a password to access your files, but otherwise the Mac experience won't be much different.

Diskless iMac? Thanks to NetBoot, Apple could theoretically offer steeply discounted iMacs, sans local storage, in bundles that include Mac OS X Server. Indeed, as part of his demonstration, Jobs showed an iMac, its hard drive removed, booting from the server.

However, citing economies of scale, Apple says a diskless iMac would not be much cheaper than a standard model, and the company has made it clear that it has no intention of offering such a machine. NetBoot's main selling point, in Apple's view, is the control and convenience it offers network administrators, not cost savings made possible by stripping down a popular consumer machine.

With NetBoot, you can perform a single installation of system software and applications and make them available to any Mac on the network. NetBoot also includes system-management tools that allow you to control access to applications and other files. For example, some users on the network might have rights to all applications, while others are restricted to using Microsoft Office. Because the files reside on a server, you can use them from any Mac on the network as long as you have the correct access privileges.

continues

Going to School The centralized control that NetBoot permits will have particular appeal for schools, which can use the software to run a classroom full of iMacs from one Mac OS X Server. Even if schools have to pay close to retail price for the iMac clients, the server itself won't strain most budgets: Apple charges $995 for a software-only version or $4,999 for a version bundled with a 400MHz Power Mac G3.

NetBoot, of course, is just one part of Mac OS X Server, which evolved from Apple's Rhapsody development efforts. At the server's core is the same Mach microkernel that will provide the basis for Mac OS X, Apple's next-generation operating system. The server also includes the BSD 4.4 version of Unix; the Apache 1.3.3 Web server; and WebObjects 4, a development tool for large-scale dynamic Web sites. The latter represents the Macintosh debut of the Web authoring software, which was previously available only for Unix and Windows NT workstations.

online

Adobe Brings CyberStudio into the Fold

GRAPHICS TITAN GETS PRO-LEVEL WEB TOOL

by Jason Snell

When Adobe Systems (408/536-6000, www.adobe.com) announced in January that it was buying GoLive Systems, maker of the popular GoLive CyberStudio Web authoring package, many industry analysts asked, "What took them so long?" But for loyal CyberStudio users, excitement about the acquisition has to be mixed with some trepidation.

The deal appears to make sense. CyberStudio users tend to be professional designers and developers, the same folks who rely on such Adobe products as Photoshop, Illustrator, and ImageReady. Adobe's only foray into HTML editing is PageMill, a consumer-level tool that has long been eclipsed by CyberStudio, Macromedia's Dreamweaver software, and other packages.

Lessons Learned? Adobe's track record with PageMill is raising fears among CyberStudio boosters that their favorite Web tool will get short shrift. Once the toast of the Mac Web design crowd, PageMill stalled when Adobe turned its attention to creating a Windows version. The result was a dated Mac program that couldn't handle many of the hottest new Web innovations.

CyberStudio loyalists are understandably concerned that Adobe will again turn its attention to the Windows market and deprive Mac users of a top-notch Web design tool. There's no doubt that Adobe will offer a Windows version of CyberStudio: GoLive was working on one even before the Adobe deal went through.

Nevertheless, Adobe marketing vice president Bruce Chizen says that Adobe has learned the lesson of PageMill and recognizes the need to keep CyberStudio as a Web design counterpart to its other professional-level software packages. A cross-platform presence could even offer unexpected advantages for CyberStudio users: many Web authors who prefer CyberStudio were forced to use Macromedia's Dreamweaver when their organizations insisted on purchasing a cross-platform product. Adobe has not said when the program will be available on Windows.

CyberStudio's development team in Hamburg, Germany, will continue to develop the software as Adobe employees, and GoLive CEO Andreas Politza will join Adobe as an Internet-strategy consultant—both signs that Adobe intends to exploit GoLive's Net savvy, not crush it.

PageMill Prospects? PageMill's future is also up in the air. Chizen and Politza say they will compare the technologies in PageMill and CyberStudio and decide whether Adobe needs a consumer-level Web design tool. Their choices? Merge the two programs, continue selling PageMill as a low-end product, or kill PageMill and offer an entry-level version of CyberStudio similar to GoLive's current $99 CyberStudio Personal Edition.

Midrange Scanner Packs In the Pixels

IT'S NOT THE CHEAPEST FLATBED SCANNER YOU CAN BUY, but the new Expression 800, from Epson America (310/782-0770, www.epson.com), offers 36-bit, 800-dpi optical resolution for less than $1,000. Three versions are available: the $699 Executive bundle, which includes Xerox Textbridge OCR software and a limited edition of Adobe Photoshop 5.0; the $799 Artist bundle, which adds Monaco Profiler Lite for scanner calibration; and the $999 Professional bundle, which further adds a transparency adapter.—MACWORLD STAFF

multimedia

QuickTime Sprites Finally Take Flight

QUICKTIME ANIMATION PROGRAMS DEBUT

by Jeffy K. Milstead

The interactive-animation features buried within QuickTime 3 will soon get their day in the sun, courtesy of new tools from Electrifier (formerly Lari Software; 919/968-0701, www.electrifier.com), Totally Hip Software (604/685-6525, www.totallyhip.com), and others. These programs support QuickTime's new *wired sprites*—graphic elements that can perform defined actions based on user input.

Electrified After an extended paid beta period, Elec-

GIBSON

trifier has finally shipped Electrifier Pro 1.0, a $595 program that lets designers integrate any QuickTime-supported media into an interactive movie. The program's long gestation has resulted in many refinements for an initial release, including a tab that provides an instant preview of your movie.

Electrifier lets you place graphic elements known as *actors* in a movie window. You can then assign actions to each element by dragging icons from palettes. These actions control how an actor will respond to mouse-clicks or behave over time. For example, you can attach a URL to a moving graphic, or define on/off buttons for playing an embedded QuickTime movie. Movies can incorporate the full range of QuickTime media, including QuickTime VR panoramas. A 30-day trial version is available from Electrifier's Web site.

Electrifier has already announced version 2.0 of the software. Set to ship by mid-year, it is expected to add features relevant to Apple's upcoming QuickTime 4 release. (Apple was set to unveil QuickTime 4 at the recent Macworld Expo in San Francisco but delayed the announcement for unspecified reasons. The new QuickTime will reportedly offer real-time streaming capabilities.)

Scripted Sprites Totally Hip's new LiveStage software takes a different approach. Targeted at Web authors who might otherwise turn to Java, DHTML, or Flash to produce animations, LiveStage provides a QuickTime scripting language that resembles Macromedia Director's Lingo.

A LiveStage project consists of sprites driven by associated scripts. You can use expressions and variables to program complex behaviors, from simple mouse-over button effects to a complete game of Tetris or Minesweeper. It's all delivered to the user's Web browser as a single, compact QuickTime file.

Totally Hip offers a $199 developer release bundled with Web Painter 3.1, the company's Web animation program, and Apple's QuickTime 3 Pro software. The initial version will support only bitmapped and vector images, System 7 sounds, and MIDI sound files. You can build wired QuickTime VR movies by setting up sprites—such as navigational controls—in LiveStage and then using QuickTime Pro to composite them with a QTVR panorama. Totally Hip offers a save-disabled demo version of LiveStage on its Web site.

Although they support multiple data types, Electrifier and LiveStage rely on QuickTime's vector format to keep file sizes small. While LiveStage uses its bundled companion program, Web Painter, to generate still graphics in the vector format, Electrifier can directly import Adobe Illustrator files and convert them to the QuickTime format. Unlike bitmapped graphic formats, these files are minuscule and can be smoothly enlarged to full screen.

More Wires Other vendors have introduced their own tools for creating wired sprites. Deep Forest Multimedia (www.mountain-inter.net/~bmeikle/) is offering a demo version of its forthcoming WiredZone, which will sell for $99. Squamish Media Group (www.smgvr.com/msVRmain.html) has announced mapsaVR, a $99 program that lets you add sprite-driven directional indicators and navigation controls to multinode QTVR panoramas. A freeware program called Spritz (http://home.earthlink.net/~dmcgavran/spritz/download.html) lets you create wired QuickTime movies that function as simple interactive elements, such as a button bar for navigating a Web site. The program requires Mac OS 8.5.

storage

Media Limited for 8× CD-Rs

VENDORS SLOW TO OFFER DISCS CERTIFIED FOR NEW RECORDERS

by Michael Gowan

All CDs are not created equal. If you want to take full advantage of the new 8× CD recorders from APS Technologies, Smart and Friendly, and others, you'll need 8×-certified CD-R media. As of mid-January 1999, only a handful of media vendors were offering certified discs, but most of the leading players plan to offer 8× media in the near future.

Sensitive Layers A recordable CD is constructed of multiple layers, including dye and polycarbonate plastic strata. Because it records at such a high speed, an 8× mechanism requires a dye

continues

CHRIS GALL

Product WATCH

Latest LaserJet Is there still a place for monochrome laser printers? Hewlett-Packard (800/752-0900, www.hp.com) thinks so. The HP **LaserJet 2100**, which replaces the LaserJet 6P/M, offers 1,200-dpi resolution and a 10-pages-per-minute print engine in a $699 package. The **LaserJet 2100M**, with HP's PostScript-clone interpreter and extra RAM, costs $799. The **LaserJet 2100TN**, with an HP JetDirect EIO print server and an additional 250-sheet paper feeder, costs $999.

Modeler Marches On auto-des-sys (614/488-8838, www.formz.com) has released version 3.0 of **Form-Z**, its flagship modeling program for 3-D–graphics professionals. Added features include a customizable user interface, animation tools, and a host of new modeling functions. The base package sells for $1,495; a version with rendering capabilities costs $1,995.

XTension Trio Gluon (212/343-1755, www.gluon.com) has released three new QuarkXTensions. **XPressImage** lets you export QuarkXPress documents in a variety of formats, including GIF. The $149 utility can use hot folders to automate the export process. **QC** is a $225 quality-control tool that locates problems in text formatting, spot colors, and other document elements. **Cloner XTension**, priced at $129, copies an element or group of elements to any page or page range.

continues

Product WATCH

For Older Macs Looking to resurrect that old Mac Quadra or Centris? Sonnet Technologies (949/261-2800, www.sonnettech.com) has announced the **Presto PPC**, a $399 upgrade card that features a 100MHz PowerPC 601 and a 1MB L2 cache. Sonnet is also shipping G3 upgrades for the Power Mac 5400, 5500, 6400, 6500, and other "upgrade-challenged" Mac systems; prices range from $399 to $599.

Slide to Your Mac The new **SprintScan 4000**, from Polaroid (800/816-2611, www.polaroid.com), scans 35mm slides, filmstrips, and Advanced Photo System film at 4,000 dpi. The scanner, with a street price of about $2,000, can capture a slide at full resolution in less than a minute. Scheduled to ship in March, it's bundled with PolaColor Insight Pro scanning software and Adobe PhotoDeluxe.

New Homes? Don't be surprised to see some familiar Mac products in unfamiliar territory. Iomega (801/778-1000, www.iomega.com) announced that it has acquired the assets of SyQuest Technology, which declared bankruptcy this past November. SyQuest products include the **SyJet** and **Sparq** removable-media drives; Iomega has not announced its plans for the storage devices. . . . CalComp, developer of the **Creation Station** graphics tablets and **CrystalJet** large-format printers, has ceased operation and is seeking a buyer for its products.

—EDITED BY MICHAEL GOWAN

that marks easily and a polycarbonate layer with clearly defined ridges. You can burn 4× CD-Rs in an 8× drive, but only at the lower speed.

Fortunately, you probably won't have to pay a premium for the higher-speed discs. APS Technologies (800/862-6831, www.apstech.com) and Smart and Friendly (818/772-8001, www.smartandfriendly.com), which sell CD-R drives that use the same 8× Sanyo mechanism, both offer 8×-certified recordable discs for $20 per 10-pack, about what you'd pay for name-brand 4× discs. The drives themselves sell for about $500 each, compared with $300 for 4× drives.

Brand Plans Among name-brand manufacturers, TDK (516/625-0100, www.tdk.com) offers 8× discs for about $2 each. Imation (888/466-3456, www.imation.com) says it will soon offer 8× media—at prices 10 to 15 percent higher than what it charges for 4× discs. However, in *Macworld* testing, we were able to record Imation's 4×-certified discs at 8× on both 8× recorders.

APS Technologies, one of two vendors with an 8× CD-R drive, also offers 8× media.

Maxell (888/262-9355, www.maxell.com), Sony (941/768-7669, www.sel.sony.com), and Hi-Val (714/953-3000, www.hival.com) say they plan to offer high-speed discs but have not provided timetables for doing so.

Maxell currently offers 6×-certified media; Sony says its CDs have been tested at up to 6× but are certified only for 4× recording. Hi-Val, a discount brand available at CompUSA, offers 4× CDs for about $1 apiece.

systems

iMac Boards Use Forbidden Interface

NEW CARDS PLUG INTO iMAC MEZZANINE SLOT

by Kristina De Nike

When Apple developed the iMac, the company made it clear to hardware vendors that one component was off-limits: the mezzanine slot on the iMac motherboard. But the engineers at Micro Conversions (817/468-9922, www.microconversions.com) and Formac (www.formac.com) didn't listen.

Both companies have developed expansion boards that plug into the forbidden slot—despite warnings from Apple that customers may void their iMac warranty if they use the products.

iMac Wizard Micro Conversions has announced an iMac version of the Game Wizard, a 3-D–graphics accelerator designed for use with popular computer games. The $199 board features 3Dfx's Voodoo2 chip, which has become a standard for game acceleration in the PC market. It sports 8MB of RAM, compared with a maximum of 12MB for the PCI version. The card is tightly sandwiched between the iMac motherboard and chassis, and concerns about heat ventilation preclude additional memory, the company says.

Thin SCSI Formac, a German company that designed the Vision 3D Pro graphics cards sold in the United States by Mactell, has introduced a $100 Ultra Wide SCSI card that plugs into the mezzanine slot, letting you use scanners, external drives, and other SCSI peripherals with your iMac. The card features a single external SCSI 3 connector; these are thinner than standard SCSI connectors and the cables can be hard to find, but they are available. Drives connected to the card can be used to boot up the iMac.

Formac will bundle the card with its Power RAID Control software, which lets you set up RAID levels 0 and 1 storage systems. Formac says the card will work with other drive-formatting packages as well. The card is scheduled to ship by the time you read this. The company also plans to offer a $149 mezzanine board that incorporates a SCSI connector, a TV tuner, and an S-Video in port.

No Piece of Cake Installing a mezzanine card can be tricky: you have to open the iMac and remove five screws that hold the motherboard in place; the slot is on the flip side of the motherboard. To install the Game Wizard, you must also reroute the iMac's internal video cable to a connector on the board. Micro Conversions and Formac expect that most customers will opt for dealer installation.

The new multiflavored iMacs lack a mezzanine slot, so the cards will work only in the original Bondi blue model. However, Formac says it is developing an adapter that will essentially restore the slot to the newer iMacs, allowing use of the mezzanine cards.—JEFFY K. MILSTEAD CONTRIBUTED TO THIS REPORT.

ARNOLD TIOSEJO

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Reviews

Power Macintosh G3's

DESKTOP MACS' ENHANCEMENTS ARE MORE THAN SKIN DEEP

SUZANNE ROADY

ONE GLANCE AT APPLE'S NEW two-toned Power Macintosh G3 series reveals that the iMac was no aberration. With their bold blue-and-white design and inclusion of such new technologies as FireWire and USB, the new Power Mac G3's continue down the road paved by the iMac.

The new desktop Macs are as notable for what they lack as for what they include. For example, you'll find no floppy drives or serial ports on these machines. Thankfully, neither will you find the underpowered graphics chip sets included with earlier Macs. All four models include ATI's powerful Rage 128 2-D/3-D graphics card with 16MB of SDRAM, along with two FireWire ports, two USB ports, an ADB port, and a 10/100BaseT Ethernet port.

You'll notice no mention of SCSI. Apple has drawn a line in the sand with this series of computers—FireWire is in, SCSI is (mostly) out. If you want SCSI, you'll find it in the 400MHz model in the form of an Ultra II PCI SCSI card; if you want it in the less powerful Macs, you must purchase a SCSI card separately.

Kind of Blue

Initially, the most striking features of the new Power Mac G3's are the translucent-blue faceplate, backplate, and top; the ice-colored side panels revealing the ghostly G3 logo beneath; and four sturdy handles protruding from the corners of the case. The front panel sports a CD-ROM or DVD-ROM drive, an empty drive bay, a speaker port, a power switch, and programmer's and reset switches.

The keyboard and mouse—dead ringers for the iMac's—may disappoint some users. This keyboard feels cheap compared with the huge Apple keyboards of old, and some people may mourn the loss of three function keys, the end key, and the option and control keys on the right side of the keyboard. (Kudos to Apple, however, for including a USB extension cable for those who plan to store their new Mac under a desk.) And although the mouse looks great, many users will find it unacceptable: because of the round design, it's impossible to tell the top of the mouse from the bottom by touch.

Open Sesame

You may forget your disappointment with the input devices of the G3's when you see their side door, which folds down to expose the inner workings. With the door open, you have ready access to every component you're likely to touch—the moth-

REAL PRODUCTS REAL RATINGS — Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.
OUTSTANDING: ♦♦♦♦♦ VERY GOOD: ♦♦♦♦ GOOD: ♦♦♦ FLAWED: ♦♦ UNACCEPTABLE: ♦

erboard containing the G3 processor, four SDRAM slots, four PCI slots (three 33MHz, 64-bit slots and one 66MHz, 32-bit slot, occupied by the graphics card), modem connector, and internal battery is attached to the door and lies flat when the case is open. This is a brilliant design.

The layout for internal drives is just as remarkable. At the bottom of the Power Mac's case is a metal tray that holds the Ultra ATA drive and offers space for two additional internal storage devices. To mount a new device, simply remove a single screw, disconnect the data and power cables from the ATA drive, and slide out the metal tray. To place additional drives in any of the free, numbered spaces, fasten the drives, put the tray back, and plug in the drives. Note, however, that placing a 1.6-inch drive in the middle space makes it impossible to close the door. Two additional power connectors are included, although you must provide your own data cables.

It's swell that the internal workings of the new Macs are so easily accessible, but it's unfortunate that opening the door reveals so few PCI slots. With virtually no FireWire peripherals available at the moment, users who need fast external storage devices must rely on SCSI and therefore tie up one of the three open PCI slots with a SCSI adapter card.

High Performance

It should come as no surprise that these machines turned in convincing MacBench scores (see the benchmark, "Blue Blazers: New G3's Shine"). As you might expect, the new 300MHz model, with its 512K backside cache, fared worse in the Processor test than our baseline system—the former top-of-the-line Power Mac G3/300, which has a 1MB backside cache. The Processor scores for the more powerful Macs, with their 1MB cache, fell just about where we expected—14 to 30 percent faster than that of the baseline system.

More surprising—and welcome—were the Graphics scores. With the ATI Rage 128, the entry-level Power Mac achieved a Graphics score nearly twice that of the baseline machine; in the more powerful new models, the card yielded more than double the graphics performance of the baseline Power Mac. Also impressive was 3-D–gaming performance: Running the RAVE version of Quake, none of the new Macs pulled fewer than 50 frames per second (fps) from the game. The baseline system, which uses a Rage Pro graphics chip set, achieved only 23 fps.

Adobe Photoshop tests revealed the benefits of having a SCSI drive for certain operations. The ATA drives in the 300MHz and 350MHz models were not as quick as the baseline system's SCSI drive at performing Gaussian Blur and image-resize operations (adding more RAM to the new Power Macs improved Photoshop performance). On the other hand, Photoshop scrolling was much sprightlier on the new Power Macs—approximately twice as fast on all configurations.

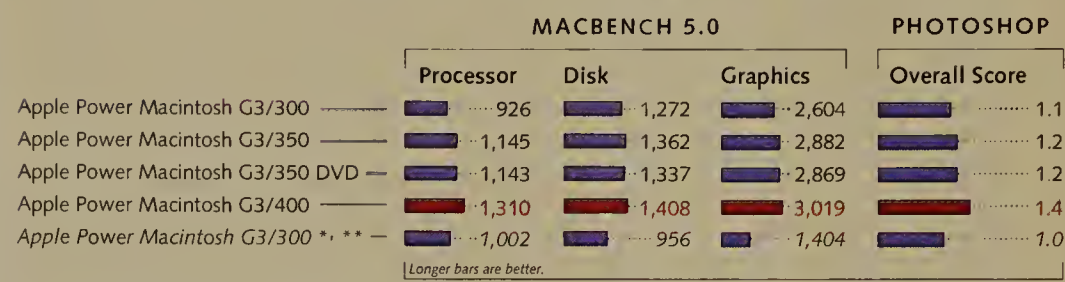
Macworld's Buying Advice

The beauty of these new Macs goes much deeper than their striking exteriors. They are clearly the fastest Macs to grace the market; they're also solidly built, easy to upgrade, and attractively priced. Although users with legacy SCSI and serial devices will have to add a SCSI PCI card as well as a serial adapter to use their old peripherals, these components are readily available and not prohibitively expensive. Less forgivable for professionals are the small allotment of PCI slots and the inclusion of input devices that emphasize form over function. But these inconveniences are mitigated by the fact that the new Macs introduce FireWire and USB to the desktop—technologies that are sure to be staples of computing in the twenty-first century.—CHRISTOPHER BREEN

Macworld LAB TEST

Blue Blazers: New G3's Shine

Best results in red. *Reference system in italics.* **MacBench 5.0 scores are relative to those of a first-generation Power Mac G3/300, which is assigned a score of 1,000 for each test. The Adobe Photoshop 5.02 scores are also relative to that of the baseline system, which is assigned a score of 1.0.**



** Previous G3 architecture. ** Test unit differed from MacBench reference system in OS version, screen resolution, and hard drive.*

Behind Our Tests

We performed five tasks in Adobe Photoshop 5.02 (Gaussian Blur, image resize, RGB-to-CMYK conversion, file save, and scroll). We averaged results and then normalized them to the baseline system. For detailed information on our tests, see www.macworld.com/tests/.—**Macworld Lab testing supervised by Gil Loyola**

New Desktop Systems Compared

Company	Product	Mouse Rating	List Price (as tested)	Phone	Backside Cache	RAM	Hard Drive	CD/DVD Drive	Zip Drive
Apple Computer	Power Mac G3/300	♦♦♦♦	$1,599	408/996-1010	512K	64MB	6GB Ultra ATA	24× CD-ROM	○
	Power Mac G3/350	♦♦♦♦	$2,499	408/996-1010	1MB	128MB	12GB Ultra ATA	24× CD-ROM	●
	Power Mac G3/350 DVD	♦♦♦♦	$1,999	408/996-1010	1MB	64MB	6GB Ultra ATA	32× DVD-ROM	○
	Power Mac G3/400	♦♦♦♦	$2,999	408/996-1010	1MB	128MB	9GB Ultra II SCSI	24× CD-ROM	○

● = yes; ○ = no.

Macromedia Director 7

MULTIMEDIA TOOL BECOMES MORE POWERFUL—AND MORE APPROACHABLE

TAKE A DEEP BREATH AND recite the full name—all 18 syllables of it. Macromedia Director 7 Shockwave Internet Studio is the most Web-savvy Director yet. Not that Macromedia is ignoring creators of games, CD-ROM titles, or interactive kiosks; many of Director's new features are just as welcome in these non-networked applications. But the program's Internet focus is unmistakable. And for creating hybrid projects—such as a CD-ROM that retrieves updates from a Web site or a multiuser game that enables distant players to lock horns—Director 7 is a dream.

In Director's Chair

Director veterans will feel at home in Director 7. It has all the familiar trappings: the Stage, where you position and arrange your project's media elements; the Cast, which holds media elements that you import or create using Director's built-in tools; and the Score, a timeline-like window where you choreograph your project's flow and interactivity.

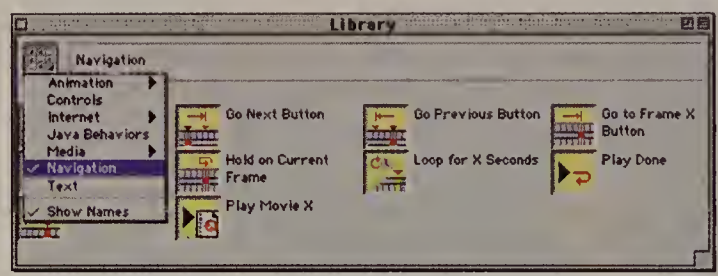
Creating a project in Director generally involves working with these key components as well as with Lingo, Director's built-in programming language. You're also likely to work with *behaviors*, which are canned Lingo scripts that perform common tasks. When you've finished, you can create a *projector*, a double-clickable version of your project that you can distribute to others. For Web-destined projects, you can create Shockwave movies that rely on Macromedia's popular browser plug-in. You can also create Java applets, although these provide only limited support for Director's capabilities.

Director 7's body may be similar to that of previous versions, but its engine is new. In Director 7 you can have as many as 1,000 channels in the Score window, up from 120 in Director 6.x. Projects can play back at speeds of up to 999 frames per second, up from 500. In short, it's hard to imagine a project that would exceed Director 7's playback capabilities.

One downside of this engine rebuild: Director 7 bids farewell to 680X0 Macs and to Windows 3.1. It's bad enough that you can no longer develop projects *on* these systems—you can't even create projectors *for* them. If you want to create titles for elderly computers, Director 7 isn't for you.

New Media, New Control

Director has long provided built-in tools for creating richly formatted text and bitmapped graphics. In Director 7 there's a new data type on the block: vectors. Director 7's new Vector Shape window provides a FreeHand-like pen tool for drawing bandwidth- and memory-friendly shapes, complete with Bézier control points and optional solid-color or gradient fills. Director 7 automatically antialiases vector shapes. Even better, you can control every property of a vector shape using Lingo scripts. Combine this with Director 7's Internet-access features, and you could create a dynamic bar or line graph that changes depending on certain data retrieved from a Web site.



Director Behaves Director 7's Library palette is the gateway to dozens of built-in behaviors that simplify authoring.

Director 7 can import bitmaps containing alpha channels, thus simplifying the creation of special transparency effects, such as feathering and drop shadows. Director 7 also adds support for the PNG graphics format and for animated GIFs.

Director 7 greatly simplifies such common animation tasks as rotating media elements. For example, to create an animation of a spinning star in previous versions, you had to create multiple versions of the star, each rotated to a different angle, and then laboriously swap one for the next to animate the rotation. In Director 7 you can simply use keyframes or Lingo to rotate or skew any media element. That means much less work for you, and smaller, more memory-efficient projects.

Better Behavior

Director's heritage as an animation program has always complicated the creation of interactive projects. Implementing simple interactivity—such as creating a set of buttons that enable users to branch to different screens—meant writing scripts in Lingo.

Director 6 streamlined authoring a bit by introducing behaviors—canned scripts that perform common tasks. In Director 7, behaviors are dramatically improved. A new Library palette provides fast access to dozens of behaviors in categories ranging from animation to navigation to Internet streaming (see "Director Behaves"). To assign a behavior to an item, you simply drag and drop that behavior's icon.

Director 7 provides behaviors for the most-common interactivity chores, and they work well. Even if you don't know a lick of Lingo, you can create an interactive production containing branching buttons, QuickTime movies, animations, and streaming audio.

Lingo still lurks beneath the surface of every behavior, and you'll need Lingo mastery to modify a behavior's scripts. But the good news is that unlike Director 6.x behavior scripts, Director 7's are laden with comments that make them easier to understand and tweak.

And speaking of Lingo, it too has evolved. Programmers can now use space-efficient *dot syntax* to get and set properties. Common in modern languages such as JavaScript, dot syntax makes for less verbose scripts.

Text (and HyperText) Power

Director has had first-rate text features since version 5 introduced the word processor–like Text window, antialiased text, kerning, and the ability to import Rich Text Format (RTF) files. But Director developers always faced the specter of missing fonts: to ensure that text would look as intended, they either had to license and distribute custom fonts or settle for using ubiquitous (and often boring)

fonts such as Helvetica and Times.

Director 7 changes this by enabling you to embed any fonts installed in your system directly in a project. Director compresses its so-called Shocked fonts so that they take up only about 10K to 20K apiece. You can trim this even further by embedding only those characters that you actually need. Shocked fonts are available only to the project in which they're embedded, so there are no licensing or copyright issues to contend with.

Also new is the ability to import HTML files with most formatting intact. You can even import Web pages over the Internet by entering a page's URL in the Import dialog box, although this often yielded error messages in our tests. Director 7 does a reasonably good job of retaining a page's formatting, recognizing tables, fonts, and common formatting tags. Director 7 doesn't import images referenced in HTML pages, but it does retain hyperlinks. You must use Lingo programming to have a hyperlink launch a Web page, but one of Director 7's built-in behaviors can handle this for you.

Director 7's other Internet-related enhancements include behaviors that post text entries to a CGI running on a Web server, and a new multiuser server that makes it possible to create networked games and chat spaces.

For bandwidth-friendly audio, Director 7 also includes Headspace's Beatnik Xtra, which includes behaviors that let you play and control Beatnik music files. Director 7 also supports the Shockwave Audio format, which lets you deliver streaming audio using a conventional Web server (see "Making Waves with Streaming Audio," *Create*, February 1998).

Tribeworks iShell: Free Authoring at a Price

IF YOU DON'T LIKE DIRECTOR—or you can't spend $1,998 to develop for both Mac and Windows—look into iShell, from Tribeworks (415/732-7004, www.tribeworks.com). From the developers of Apple's defunct Apple Media Tool, iShell combines solid authoring features with an unbeatable price tag.

Tribeworks has put a unique twist on the open-source software-distribution approach popularized by Linux. iShell is free: register at Tribeworks' Web site, and you get a download password. To create a Mac or Windows run-time version of a project, you register for a free run-time license file.

Tribeworks hopes you'll like iShell enough to pay $2,000 for a one-year "full membership," which gets you technical support, the ability to create run-times without registering each project you create, *and* the full source code to iShell itself.

iShell's interface differs from that of Apple Media Tool (AMT), but the programs are conceptually similar. As with AMT, iShell's only content-creation function is a rudimentary text tool—you create your content in other programs and then import it. As you import media elements, you can assign events and commands that branch to other screens, play movies, move items across the screen, and so on.

Many of iShell's authoring features pale alongside Director's. But iShell provides excellent support for QuickTime, including QuickTime VR and QuickTime 3 effects. The program can't display HTML pages—as Director 7 can—but can access files over the Web, making possible CD-ROM–Web hybrid projects.

iShell lacks Director's depth and maturity, and its documentation is literally a work-in-progress. Still, iShell deserves a look. Budget-minded developers will love its price tag, and Director haters will appreciate its object-oriented authoring style. If Tribeworks' open-source gamble pays off, iShell could evolve into a major contender.

But remarkably, the Macintosh version of Director 7 provides no way to compress Shockwave Audio files; the manual tells you to use Macromedia's SoundEdit 16, which is no longer included with the Director suite.

Bundle of Joy

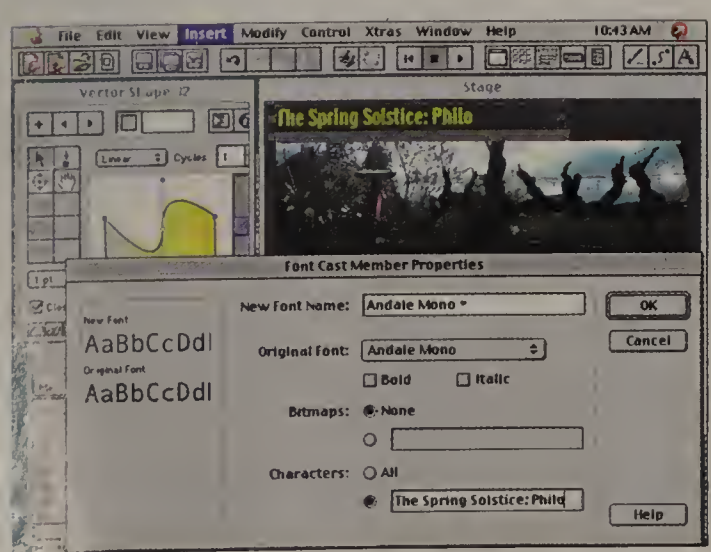
How has Director 7's supporting cast changed? Gone are the Xres image editor and Extreme 3D modeler. For image editing you get Macromedia Fireworks, which is a solid, all-around image editor particularly adept at creating Web graphics (see *Reviews*, October 1998).

For sound editing, Mac users get Bias's Peak LE while Windows users get Sonic Foundry's Sound Forge XP. Both are scaled-down versions of first-rate audio editors. We prefer Sound Forge XP to Peak LE—it was more stable in our tests and its interface is less cluttered—but either is sufficient for simple sound-editing and conversion tasks.

Even if you already have sound- and image-editing programs, you cannot buy Director 7 separately unless you're a registered user of a previous version, in which case you can buy the upgrade for a steep $449. Macromedia should make Director 7 available separately. You'll still need to buy the Windows version of Director to create projectors for the Windows platform.

Macworld's Buying Advice

For a major upgrade, Director 7 is remarkably well behaved. But it isn't perfect. Some bugs in its text-handling features can cause crashes in text-heavy projects. And a change in the way the Stage works causes display problems with movies in a window, which many Director developers use. A little Lingo script generally fixes this. But by and large, Director 7 is an outstanding upgrade, packing more power and introducing new features that finally make Director approachable for beginners.—JIM HEID



s and Vectors Director 7 can embed some or all of a font's cters in a project to ensure typographic fidelity. Also visible Director 7's new Vector Shape window.

RATING: ♦♦♦♦ **PROS:** Simplified authoring; excellent Web features; beefed-up playback engine; vector and alpha-channel support. **CONS:** Mac version can't compress Shockwave Audio files; some text-handling bugs; application not sold separately. **COMPANY:** Macromedia (415/252-2000, www.macromedia.com). **LIST PRICE:** $999 (Director-only upgrade from earlier versions, $449; full Studio upgrade from earlier versions, $499).

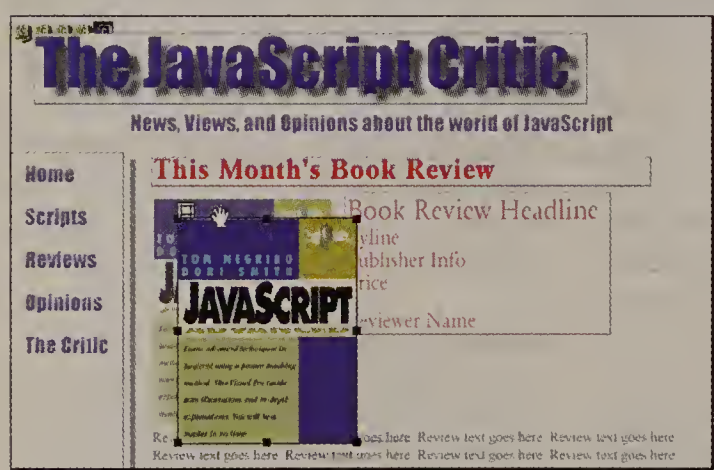
Dreamweaver 2

MACROMEDIA DREAMS UP IMPRESSIVE UPDATE

PAST VERSIONS OF MACROmedia's Dreamweaver were solid but hard to love, with a clunky interface that discouraged the exploration that allows mere users to become wizards. But with a new emphasis on usability, added to new cutting-edge features, Dreamweaver 2 promises to delight both designers and code geeks.

Winning Features for Designers

Dreamweaver 2 is packed with improvements to its page-design tools. The best addition, the Tracing Layer, recognizes the fact that in many shops, a designer creates a comp for a Web page in Adobe Photoshop or QuarkXPress and hands a color printout to a Web jockey, who then re-creates the page in HTML. Dreamweaver lets you take a GIF or JPEG comp image and place it in the background of the document window as a guide (see "Comp Tracing"). New rulers, snap-to guides, and grids make it easy to match the comp.



Comp Tracing I'm moving this Dreamweaver 2 layer into place, based on the position of the comp image in the Tracing Layer (visible as a dimmed image in the background).

Once you've created a page, you save it as a reusable template with both editable and locked regions. Combined with check-in/check-out page control (which tells users when a particular page is being changed), Dreamweaver's templates give designers the comfort of knowing that writers and editors can change content without inadvertently mangling the page's design.

Dreamweaver's support for table editing is also vastly improved. You can now apply text and other formatting to rows, columns, or an entire table; select and format noncontiguous cells; and sort table contents. Splitting and merging table cells is a snap, and an included JavaScript extension lets you swap the axes.

Previously, Dreamweaver's many floating palettes were a recipe for screen clutter. In version 2, you can dock palettes together into a single tabbed window. The program now makes excellent use of contextual menus and has fewer annoying modal dialog boxes. It also includes precoded objects, such as one that lets you quickly create image-rollover effects. And a new, smart eyedropper tool lets you pick up a color from anywhere on your desktop; Dreamweaver snaps it to the nearest Web-safe color.

Dreamweaver takes advantage of all the features in the 4.0 browsers but also offers backward compatibility. You can lay out pages using layers and then convert the layers to backward-compatible tables with a single menu command. You can use JavaScript behaviors that target specific browser versions, or go for lowest-common-denominator effects. Because it's available for both Mac and Windows, Dreamweaver tries hard to cover all the platform and browser bases. As before, you can check your pages for HTML compatibility against profiles of Netscape Navigator and Microsoft Internet Explorer, but version 2 adds profiles for Opera Software's Opera and Microsoft's WebTV browsers.

Happy Geeks Are Productive Geeks

Nothing annoys HTML coders like having a visual tool arbitrarily rewrite their carefully honed code. Dreamweaver has always respected custom HTML, and the new version continues and extends this tradition. The program won't change tags it doesn't recognize, instead highlighting unknown tags in yellow; it also recognizes (and won't change) code that works with server-side tools.

Dreamweaver comes with a nice set of prewritten JavaScript behaviors, including form validation and layer and timeline control, and can trigger Shockwave or Flash content. You can preview multimedia content right in the Dreamweaver document window, without having to switch to a browser.

The new version catches up to GoLive CyberStudio (now an Adobe product) in site management by adding a visual site map, the ability to check and repair broken links, and an improved FTP tool for uploading and downloading sites. The supercharged find-and-replace function fixes tags and files throughout a site and accepts regular expressions.

A feature unique to Dreamweaver is the program's amazing extensibility, going far beyond mere scripting. While competitors such as CyberStudio allow developers to create new JavaScript functions, Dreamweaver supports a Document Object Model that lets programmers use JavaScript and HTML to write custom menu commands, behaviors, inspector palettes, and objects. There's even a way to create plug-ins in C.

Dreamweaver 2 seems to be faster than previous versions, though just as RAM-hungry; with larger sites, the program complained about memory until I boosted its RAM footprint from the suggested 20MB to 32MB.

Macworld's Buying Advice

Thanks to its interface improvements, Dreamweaver has outgrown its ugly-duckling phase and is much easier and more fun to use. Smart innovations like the Tracing Layer show that Macromedia has been paying close attention to the way designers work in real production environments, and Dreamweaver's first-do-no-harm approach to HTML shows a nice appreciation of the challenges that Web coders face. Fully competitive with CyberStudio, but with unique strengths of its own, this striking upgrade should win Dreamweaver many new converts.—TOM NEGRINO

RATING: ♦♦♦♦½ **PROS:** Superb table handling; excellent design and layout tools; very good code control; excellent extensibility. **CONS:** RAM-hungry and not always polite about it. **COMPANY:** Macromedia (415/252-2000, www.macromedia.com). **COMPANY'S ESTIMATED PRICE:** $299.

Fool God.

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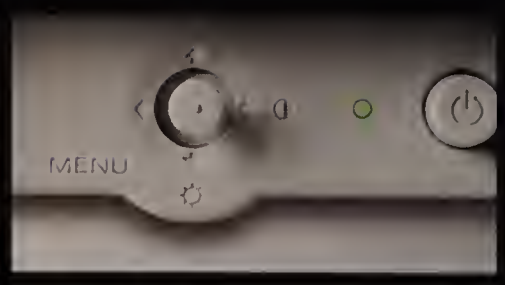

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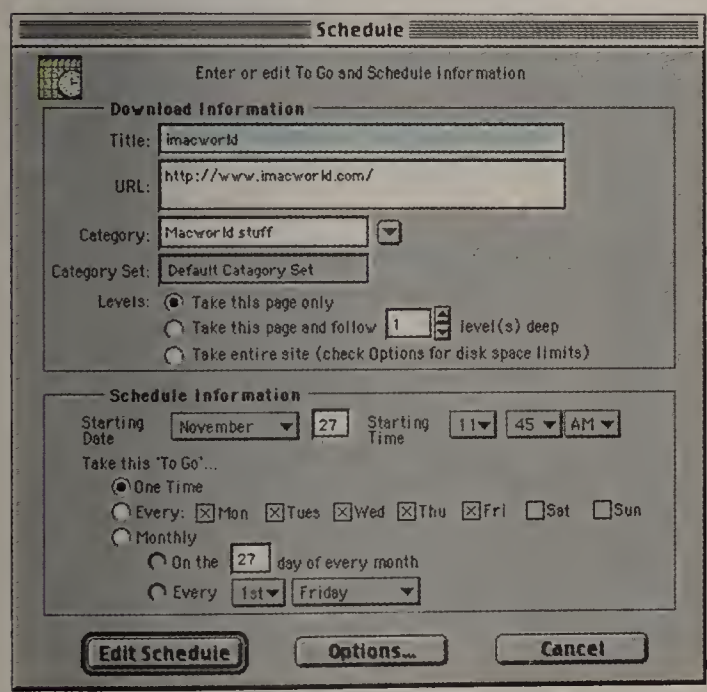
Offline Web Tools

ONCE BENEFICIAL, NOW NECESSARY?

AS THE MAC AND ITS BUNDLED software applications adopt new features, some third-party software is relegated to the "old and in the way" pile. Take Microsoft Internet Explorer 4.0 and Mac OS 8.5's Sherlock search utility, for example. Now that Internet Explorer lets you save Web pages as offline archives, are utilities that perform a similar function still useful? And since Sherlock can search the Web for items that interest you—and rank them by relevance—do you need a like-minded utility? Those are the questions we put to two offline Web-browsing utilities—DataViz's Web Buddy 2.0 and Blue Squirrel's WebWhacker 3.0—and a Web-searching utility, Leptonic Systems' SurfJet Agent 1.0.



Delivery Service You can configure Web Buddy 2.0's schedule to determine when your favorite Web pages are downloaded.

Working the Web

Although Internet Explorer allows you to save a single page as well as anything linked to that page, Web Buddy's and WebWhacker's other tricks are compelling enough to justify buying the programs. Both let you dig deeper into a Web site (up to 99 levels) than does Internet Explorer (5 levels). And both applications let you schedule times to download *any* page or site. Internet Explorer offers a similar feature, but it works only with sites that support Internet Explorer channels.

Each of the applications also has a more comprehensive set of filters than does Internet Explorer. With the latter, you can exclude files attached to a Web page in only a general way—you can filter all images, sounds, and movies. With Web Buddy and WebWhacker, you can be more selective about which MIME types you download.

While Web Buddy and WebWhacker share some advantages over Internet Explorer, they aren't twins. Web Buddy is the easier to use when you're surfing the Web, because it's available to you from within your browser; to use WebWhacker, you must switch from your browser into the WebWhacker application. And if you want to perform scheduled downloads, WebWhacker must be running; Web Buddy launches itself at the appointed time.

Web Buddy offers other convenient features you won't find in WebWhacker: you can create and file bookmarks with a single click, and a translation feature lets you turn Web pages into word-processing documents. (You can export files in WebWhacker as well, but only as separate HTML and graphics files.) Regrettably, Web Buddy's translation is a hit-or-miss affair—some pages translate complete with text and graphics, while others fail to translate at all.

WebWhacker isn't entirely outdone by Web Buddy, however. Unlike Web Buddy, WebWhacker allows you to search for text in the pages you've downloaded. And most important, WebWhacker is compatible with Mac OS 8.5. In my tests, Web Buddy 2.0 froze three different Macs running OS 8.5 whenever a scheduled event initiated a dial-up Internet connection. (The problem doesn't exist under OS 8.1.)

Sherlock's Smarter Brother?

SurfJet Agent is another program that might fare better if there weren't a free alternative. Much like OS 8.5's Sherlock, SurfJet Agent logs on to the Internet and queries search sites based on keywords you've entered. As with Sherlock, you can include a wide variety of terms in a single search, but unlike Sherlock, SurfJet Agent lets you indicate your level of interest via sliders to help determine the relevance of the search results.

However, SurfJet Agent failed to find sites easily found by Sherlock. When I tested both applications, using my name as the search term, Sherlock found more than a dozen references; SurfJet Agent failed to locate a single one. And adding search sites to Sherlock is easy—just drop them onto the System Folder. SurfJet Agent requires that you enter the URL for new search sites as well as arcane prefix codes such as **&TERM_1=**. Let's hope a future version of the program searches farther afield and is easier to configure.

Macworld's Buying Advice

Although Web Buddy 2.0 is a more flexible and feature-packed offline Web reader than WebWhacker 3.0, it gets only a conditional recommendation due to its continued problems with OS 8.5. SurfJet Agent 1.0 is off to a good start, but it needs to offer a friendlier way to add search sites.—CHRISTOPHER BREEN

SurfJet Agent 1.0

RATING: ♦♦♦ **PROS:** Helpful relevancy ranking. **CONS:** Difficult to add search sites; searches not always broad enough. **COMPANY:** Leptonic Systems (516/424-5857, www.panix.com/~lepton/index.html). **LIST PRICE:** $50.

Web Buddy 2.0

RATING: ♦♦♦½ **PROS:** Accessible from within a browser; program launches itself to run scheduled downloads. **CONS:** Doesn't translate all Web pages; Mac OS 8.5–compatibility problems. **COMPANY:** DataViz (203/268-0030, www.dataviz.com). **LIST PRICE:** $50.

WebWhacker 3.0

RATING: ♦♦♦ **PROS:** Compatible with Mac OS 8.5; good search engine. **CONS:** No auto-launch feature for scheduled downloads. **COMPANY:** Blue Squirrel (801/523-1063, www.bluesquirrel.com). **LIST PRICE:** $50.

Photoshop Plug-Ins

FILTER TRIO OFFERS SHADOW, BLUR, AND 3-D EFFECTS

SOME VENDORS OF ADOBE Photoshop plug-ins use the smorgasbord approach, bundling a variety of special-effects filters and other add-ons into one low-cost package. Andromeda Software takes a different tack, offering individually priced plug-ins that specialize in certain tasks. The latest are Shadow Filter 1.12, for applying elaborate shadow effects; VariFocus Filter 1.1, for performing selective sharpen and blur operations; and my personal favorite, Three-D Luxe Filter 3.0, for creating textured 3-D models in Photoshop.

Aesthetic Appeal Andromeda Shadow Filter 1.12 features a MetaCreations-inspired interface.

All three plug-ins sport interfaces inspired by MetaCreations' Kai's Power Tools, with controls that resemble what you might find on an alien spaceship (see "Aesthetic Appeal"). The screens appear somewhat cluttered—and baffling—at first, but once you get the hang of the interfaces, the plug-ins are easy to use.

Limited 3-D

Andromeda's original 3-D plug-in, Three-D Filter, let you map Photoshop images to the surface of a cylinder, sphere, box, or plane. The new Three-D Luxe Filter goes beyond its predecessor by letting you add a wide range of photo-realistic textures to 3-D objects.

In Three-D Luxe's 3-D Geometry mode, you use slider controls to set lighting conditions, apply surface and background colors, rotate and scale the object, and determine how the image is mapped to the 3-D shape. You can scale the image, change its position on the object's surface, and create tiled copies. Aside from scaling, however, you can't modify an object's geometry, nor can you import models created in other 3-D programs.

Three-D Luxe displays a wire-frame view of the object in a large window, but you can quickly generate a rendered preview that shows lights and shadows. When you're finished, the plug-in produces an image of the 3-D object with the photo mapped to it.

The new Texture mode lets you apply a wide range of photo-realistic textures to objects. The plug-in ships with about 75MB of canned textures, organized by type (biological, mechanical, and so on). The textures are beautifully rendered and lend themselves to some eye-popping surface effects. All of them can be bump-mapped, giving the impression that the object's surface is deformed. You can create your own bump-mapped textures or convert the active Photoshop image into a bump map.

Only the Shadow Knows

Alien Skin's Eye Candy and Extensis PhotoTools both include plug-ins for creating drop shadows, but neither comes close to offering the range of features in Andromeda Shadow Filter. This plug-in lets you generate multiple drop or cast shadows in different colors, at different sizes, with various levels of sharpness. It also offers unlimited undo's.

You can use as many as four light sources and set the angle of the casting plane, the surface on which the shadow appears. For objects (such as fishbowls) that are partially transparent, you can also create transparent shadows. The plug-in can't add noise to a shadow, but you can do that easily enough in Photoshop.

Out of Focus

VariFocus adds a few wrinkles to Photoshop's Gaussian Blur and Unsharp Mask filters by letting you apply these effects through a mask. You can use the filter to create depth-of-field effects in which selected parts of an image are focused more sharply than others.

The masks in VariFocus Filter are gray-scale images that determine how strongly the blur or unsharp-masking effect is applied; the effect is stronger in light areas and weaker in dark areas. You can scale the masks, or rotate them in increments of 90 degrees.

The plug-in ships with 15 prebuilt masks, but many photographs will require custom-built masks, and creating them can be cumbersome.

Macworld's Buying Advice

Of the three plug-ins, Three-D Luxe Filter 3.0 probably has the broadest appeal. It offers a great way to add perspective effects and other 3-D imagery to pictures, though it's limited to a few standard geometric shapes and can't import models created in other programs. Shadow Filter 1.12 offers a wide range of shadow-generating functions but is probably overkill for most artists, especially if you already have the more modest shadow filter in PhotoTools or Eye Candy. VariFocus Filter 1.1 is probably the least useful of the three, since you can create many selective blur effects almost as easily using Photoshop's built-in tools.—STEPHEN BEALE

Shadow Filter 1.12

RATING: ♦♦♦♦ **PROS:** Comprehensive shadow-generating functions. **CONS:** A bit expensive for a one-trick pony. **COMPANY:** Andromeda Software (805/379-4109, www.andromeda.com). **LIST PRICE:** $99.

Three-D Luxe Filter 3.0

RATING: ♦♦♦♦ **PROS:** Easy creation of textured 3-D objects. **CONS:** Can't import models or modify geometry. **COMPANY:** Andromeda Software (805/379-4109, www.andromeda.com). **LIST PRICE:** $99.

VariFocus Filter 1.1

RATING: ♦♦♦ **PROS:** Can apply variable blur or sharpen effects. **CONS:** Built-in masks not very useful. **COMPANY:** Andromeda Software (805/379-4109, www.andromeda.com). **LIST PRICE:** $44 (in bundle with Shadow Filter, $119).

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Extensis Intellihance Pro 4.0

IMAGE-CORRECTION PLUG-IN CAN'T MATCH TEST STRIP

ALTHOUGH ADOBE PHOTOSHOP offers an array of tools for improving the look of your images, figuring out the best mix of brightness, color cast, and other adjustments for a particular photograph can be a challenge. Extensis Intellihance Pro 4.0, a Photoshop plug-in, makes it easy to see how different combinations of settings will affect your image. Once you've got the right mix of adjustments, you can apply them with a single mouse-click. It's a great idea, but the most significant addition to this upgrade—the new Power Variations mode—is implemented more successfully in a competing plug-in, Vivid Details' Test Strip (see *Reviews*, May 1998).

Sincerest Form of Flattery?

Power Variations, one of Intellihance's three modes, is almost a feature-by-feature copy of Test Strip (prompting Vivid Details to file a patent- and trademark-infringement lawsuit against Extensis). The plug-in presents your image in a multiple-pane layout; each pane shows variations in a single attribute, such as Green/Magenta Cast (see "Copycat?"). Click on the pane that looks best to you, and that becomes the active image. You can also print the variations to proof them on paper.

Some features in Power Variations go beyond their Test Strip counterparts. You get a larger selection of layouts, up to a five-by-five grid. Any layout can include a single subdivided image or repeating images; Test Strip offers a repeating-image option in only one of its color-adjustment modes. And you can store any combination of settings in a single preset and run them directly from an Extensis menu that appears in Photoshop; Test Strip presets can be run only from the plug-in. But where it really counts—making precise color corrections—Intellihance falls short.

Color theory holds that adding a certain percentage of one primary color is the same as subtracting its opposite. For example, adding 10 percent green to an image is the same as subtracting 10 percent magenta, as you can see in Photoshop's Color Balance dialog box. It follows that if you add 10 percent green and 10 percent magenta, you're back where you started and your image should be unchanged. That's what happens when you add the two colors in Test Strip. But add them—or any other complementary pair—in Intellihance's Power Variations mode, and the colors shift noticeably.

Other omissions make it look as if the upgrade was rushed out the door. In all three modes, Intellihance lacks an Undo feature, and its functions don't show up in Photoshop's Actions palette (Extensis says it will address the latter problem in a forthcoming update). The Power Variations interface is also a bit sloppy: the labels that identify each pane in the layout appear to be pop-up menus until you click on them and see that there are no additional selections.

Copycat? Intellihance Pro 4.0's Power Variations mode (top) borrows heavily from Vivid Details' Test Strip (bottom).

Plug-in à la Mode

Intellihance's other two modes, Intelligent Adjustment and Fine Tuning, also borrow from Test Strip. These modes let you experiment with different mixes of contrast, brightness, descreening, saturation, color cast, sharpness, despeckling, and dust and scratch removal. You can compare the effects using the same layouts available in Power Variations mode.

The Intelligent Adjustment mode offers limited options for each setting, but you can adjust those settings manually using the plug-in's Fine Tuning mode. For example, the brightness choices in Intelligent Adjustment mode are Off, Deeper Shadows, Shadow Emphasis, Balanced Tone, Midtone Emphasis, and Highlight Emphasis. In Fine Tuning mode, you can modify brightness through a Photoshop-style Curves function or by entering numeric values for shadows, midtones, and highlights.

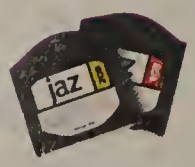
As in Power Variations, you can store the effects as presets and apply them directly from the Extensis menu. Presets also appear in a pop-up menu above each pane in the layout.

Intellihance ships with dozens of presets that theoretically cover most common image-correction scenarios, such as compensating for too much flash in a digital photograph. However, only a few presets seem useful where real-world photos are concerned, and there's little you can do with them that you can't do with Photoshop's Actions palette and built-in image-correction tools. One exception is Intellihance's descreening function, which converts scanned halftones from a magazine or newspaper into moiré-free continuous-tone images suitable for printing. Intellihance's Fine Tuning mode also gives you greater control over despeckling than Photoshop does.

Macworld's Buying Advice

Extensis Intellihance Pro 4.0 is easy to use and lets you compare and apply a wide range of image modifications. However, its Intelligent Adjustment and Fine Tuning modes add little to Photoshop's built-in image-correction functions, and the Power Variations mode suffers from a flawed implementation of color theory. Extensis may call it Intellihance Pro, but most imaging professionals are better off sticking with Test Strip.—STEPHEN BEALE

RATING: ♦♦♦ **PROS:** Easy to use; extensive image-correction options. **CONS:** No Undo function; interface quirks; flawed color-correction tools. **COMPANY:** Extensis (503/274-2020, www.extensis.com). **COMPANY'S ESTIMATED PRICE:** $199.



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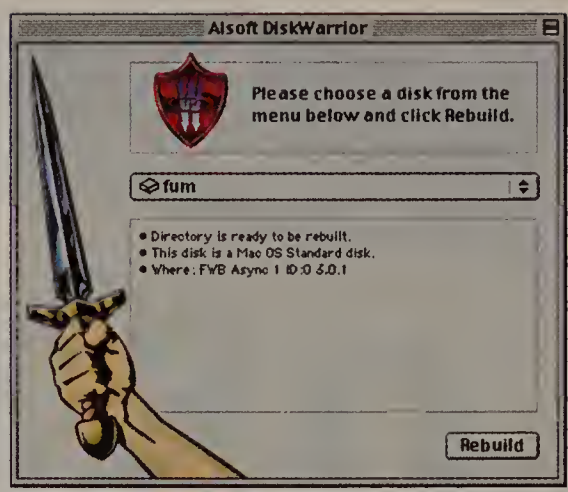
DiskWarrior

NEW TOOL FIXES DAMAGED DIRECTORIES

EVERY MAC VOLUME HAS A CATalog—a kind of table of contents—that the OS uses to find your files. If the catalog becomes badly damaged and you don't have a backup, your data could be lost. Alsoft's DiskWarrior comes to the rescue by repairing mangled catalogs, displaying impressive stability and reliability for a 1.0 release.

DiskWarrior's sole focus is the reconstruction of catalogs, a process that's beneficial for healthy as well as broken catalogs. Unlike Symantec's Norton Disk Doctor, DiskWarrior doesn't examine your disk, run through a checklist of possible errors, and fix them one by one. Instead, DiskWarrior takes a holistic approach: it looks at the existing catalog data, collects additional information the OS has stored elsewhere on the disk, and uses all the information to recreate an entirely new catalog.

By rebuilding a damaged catalog, DiskWarrior can resurrect previously deleted files as well as those believed to be lost. If the catalog is healthy to begin with, rebuilding has a measurable speed benefit because a fresh catalog is much easier to search. On a test volume, the Mac OS's Disk First Aid took 1 minute and 44 seconds to scan the catalog; after rebuilding, it took only 39 seconds. (To rebuild a disk's catalog without DiskWarrior, you'd have to back up, initialize, and restore the disk; simply defragmenting files with a disk optimizer doesn't have the same effect.) And DiskWarrior proved remarkably reliable: not once during testing did the program create a bad catalog or cause any disk-related vexations.



Foolproof DiskWarrior's opening window couldn't be simpler: just pick a disk and press the Rebuild button to restore your disk directories' health.

DiskWarrior's user interface is remarkably straightforward. You simply select a disk and press the Rebuild button (see "Foolproof"), and DiskWarrior builds a new catalog. Once it's finished rebuilding, you can preview how your disk will look with the new catalog: DiskWarrior mounts both the original and rebuilt catalogs as read-only disks and lets you explore them in the Finder. You can then use the preview catalog to copy files off the disk, without changing anything on the disk itself. If you decide you want to keep the rebuilt catalog, DiskWarrior uses it to replace the old one.

Only one noticeable flaw appeared during testing: if a disk was damaged in such a way that the Mac OS refused to mount it, DiskWarrior wouldn't work with it.

Macworld's Buying Advice Although it's not as comprehensive as Norton Disk Doctor, DiskWarrior performs its one crucial function well and should be part of any collection of disk tools. Not only is the program useful for sprucing up healthy disks but it also increases your odds of recovering files that might otherwise be lost.—STEPHAN SOMOGYI

RATING: ♦♦♦♦ **PROS:** Reliable; foolproof user interface; useful preview feature; speeds up healthy drives. **CONS:** Can't see unmountable disks; not as comprehensive as Norton Disk Doctor. **COMPANY:** Alsoft (281/353-4090, www.alsoft.com). **LIST PRICE:** $69.95.

Hard Disk ToolKit 3.0

FORMATTER-DRIVER PACKAGE IMPROVED BUT FAR FROM PERFECT

EVEN THOUGH APPLE'S OWN Drive Setup software originally formatted your Mac's internal drive, the formatter is unlikely to recognize any hard disks you add; it's very picky about which drives it works with. One solution is FWB Software's Hard Disk ToolKit 3.0.1, a collection of disk-driver tools that support hardware from third parties as well as from Apple. This update improves performance and integrates FWB's RAID ToolKit, but the fundamental flaws remain: some features and functions are still hard to find, and the package could be more cohesive.

As in previous incarnations of Hard Disk ToolKit, the core application formats and partitions drives, installs drivers, lets you configure installed drivers, and tests drives for errors. Version 3.0 adds a bit of window dressing, such as tabs in the user interface (see "Just Add Tabs"), but most of the changes lie under the hood.

With the integration of RAID ToolKit, you can now create striped, spanned, and mirrored RAID arrays from within Hard Disk ToolKit. The IDE driver now supports the hugely useful SCSI Disk Mode for PowerBooks, and the SCSI driver offers improved performance and compatibility—for example, FWB has updated the driver for removables to resolve a long-standing problem that thwarted attempts to repair removable media with Apple's Disk First Aid utility. A smaller but particularly welcome change is the ability to update the driver on the current start-up disk.

Just Add Tabs Hard Disk ToolKit 3.0's interface hasn't changed much overall since version 2.5; the only noticeable difference is the addition of tabs to the main window.

Unfortunately, this update doesn't give security the attention it deserves. Unlike Apple's Password Security control panel, Hard Disk ToolKit demands that you enter a separate password for every partition; ideally, there should be an option for entering a single password for each drive. And although FWB touts the program's encryption as "rock-solid," it doesn't offer any data to back up this claim. Any worthwhile encryption scheme must withstand public scrutiny, yet FWB remains mum about its technology. Network Associates' PGPDisk, despite its limitations, is a much better solution for storing encrypted data.

Macworld's Buying Advice With a user interface that's essentially unchanged from that of version 2.5, Hard Disk ToolKit 3.0.1 is more an incremental upgrade than a major revamp. If you already own the program, you'll find the $49.95 upgrade worthwhile; if not, version 3.0's fast, reliable driver is reason enough to buy the package. Overall, this collection is indispensable for anyone who maintains many drives or is concerned about drive reliability and performance.—STEPHAN SOMOGYI

RATING: ♦♦♦ **PROS:** Reliable driver; supports SCSI Disk Mode; integrates RAID features. **CONS:** Interface lacks cohesion; weak security features. **COMPANY:** FWB Software (415/345-4300, www.fwb.com). **LIST PRICE:** $199.

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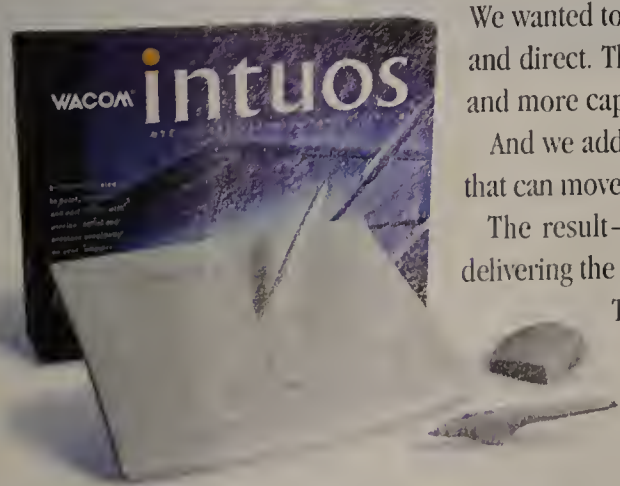

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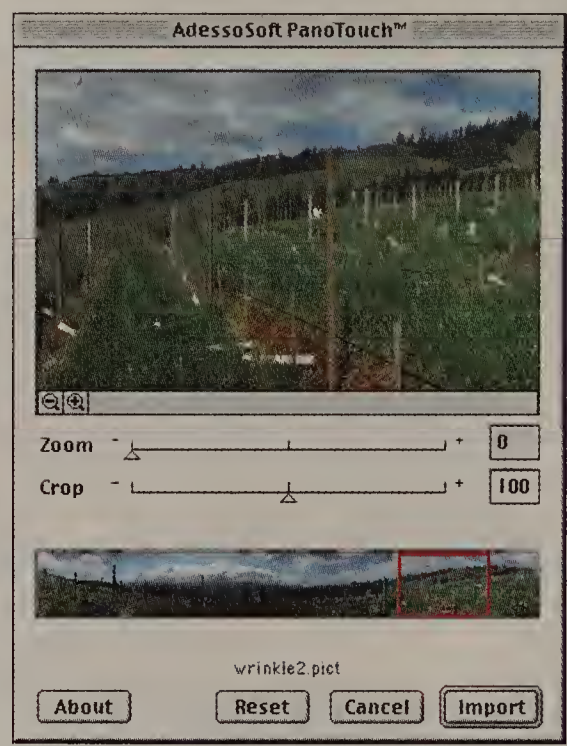
Virtual-Reality Production Tools

NEW QUICKTIME VR SOFTWARE—PLUS SOMETHING COMPLETELY DIFFERENT

YOU CAN CALL IT IMMERSIVE imaging, or you can call it interactive photography, but it's more fun to call it virtual reality. With Apple's QuickTime VR technology, you can create panoramic movies (scenes that users can explore with the mouse and keyboard) and object movies (which let users rotate and examine objects). Although Apple's $395 QuickTime VR Authoring Studio remains the best all-around VR authoring package (see *Reviews*, March 1998), competing programs have some feature and price advantages. I tested three programs from VR Toolbox (www.vrtoolbox.com): VR PanoWorx 1.01, for creating panoramas; VR ObjectWorx 1.01, for creating object movies; and VR SceneWorx 1.0, for linking multiple VR movies into scenes. I also tested AdessoSoft's PanoTouch 1.01 (www.adessosoft.com), an Adobe Photoshop plug-in that makes it easy to retouch and enhance panoramas.



Retouching with PanoTouch PanoTouch shows the full stitched panorama at the bottom of its import window; navigate to the portion you want to import by dragging the red rectangle or by dragging within the preview at the top of the window.

The Worx

VR PanoWorx is nearly identical to its predecessor, Roundabout Logic's Nodester 1.5 (see *Reviews*, October 1998). A single tabbed window steps you through importing original images, stitching them, and compressing the final panorama, but new commands facilitate the rotation and reorganization of imported images, chores that Nodester doesn't handle well. VR PanoWorx also supports URL hot spots, which link to Web addresses. When exporting a final panorama, you can create a low-resolution streaming preview—a feat that even Apple's Authoring Studio can't perform. Like Nodester (and unlike Apple's Authoring Studio), VR PanoWorx has a built-in image editor and lets you reduce a panorama's file size—features that can eliminate side trips to Photoshop for minor touch-ups and Web optimizing.

On the downside, VR PanoWorx's approach to saving files is cumbersome. To simplify moving projects among computers or platforms, the program stores both the original source images and the stitched panorama in a single file that can be 35MB or more—and that can take a good half-minute to open or save. By comparison, Apple's Authoring Studio stores pointers to your original files, so its documents are extremely small.

Like its panorama-making cousin, VR ObjectWorx is nearly identical to its earlier incarnation—Widgetizer—but adds Mac OS 8.5 interface tweaks and support for URL hot spots. It also shares Widgetizer's biggest shortcomings: no cropping features and the inability to import conventional QuickTime movies.

Although QuickTime VR lets you store multiple movies in a single disk file, with hot spots enabling users to jump from one node to another, Nodester and VR PanoWorx are limited to creating VR movies containing just one node. Enter VR SceneWorx, the only standalone program for creating multiple-node VR movies. Boasting features that even QuickTime VR Authoring Studio lacks, VR SceneWorx lets you import existing content—single-node panoramas, object movies, conventional movies, and still images—and link it using hot spots.

VR SceneWorx shares its siblings' tabbed-interface design but, unlike the others, supports Mac OS 8.5 Open and Save dialog boxes. You can import a background image file to aid in scene design, and VR SceneWorx has a set of simple drawing tools for creating a background.

After mapping out a scene, you

Virtual Toolbox

Company	Product	Mouse Rating	List Price	Phone	Pros	Cons
AdessoSoft	PanoTouch 1.01	♦♦♦	$149	650/903-2289	Simplifies retouching; elegant design; good documentation.	Can't import entire PICT; poor support for partial panoramas; somewhat costly.
VR Toolbox	VR ObjectWorx 1.01	♦♦♦	$150	412/767-4947	Straightforward interface.	Can't import linear movies; no cropping features.
	VR PanoWorx 1.01	♦♦♦	$150	412/767-4947	Straightforward interface; convenient Web optimizing features.	Creates large files; slow open and save times.
	VR SceneWorx 1.0	♦♦♦	$90	412/767-4947	Built-in drawing tools; preview mode lets you test links.	Lacks undo command.

An alternative to QuickTime VR is Interactive Pictures' (423/482-3000, www.ipix.com) Ipix, which offers some unique advantages—and also some big disadvantages.

Unlike QuickTime VR panoramas, Ipix scenes are spherical: users can look straight up and straight down. Spherical images often are of little value for outdoor scenes (who wants to look down at a dirty sidewalk?) but are ideal for many interior subjects, such as a room with an ornate ceiling. You shoot Ipix scenes with a fish-eye lens, which captures a full 180-degree hemisphere. While QuickTime VR demands a dozen or more images to capture a full scene, Ipix requires just two.

Interactive Pictures offers numerous Ipix development tools, including kits that bundle a digital camera, fish-eye adapter, tripod and mounting bracket, and production software. I tested the $1,995 Ipix Pro kit (♦♦½), which includes an Olympus D-340L camera. The kit's software, Ipix Wizard, uses a series of straightforward dialog boxes to step you through the production process. My results were only fair, with stitching artifacts frequently visible where the two images met.

For playback, Ipix offers free Windows and Mac OS plug-ins, as well as a Java applet that eliminates the need to download a plug-in. Version 2.0 of Ipix Wizard, due out by the time you read this, will add the ability to create multiple-bandwidth versions of a scene and improve Java playback.

Ipix Wizard includes serial-numbered keys that enable you to create 12 to 24 scenes, depending on the package you buy. To make more scenes, you buy additional keys at $25 per scene.

Although Ipix's spherical imaging is potentially valuable for some applications, the stitching quality and per-scene charges put Ipix a distant second to QuickTime VR.

import movies and images, position them on the background, and create hot spots to link them to each other or to Web pages. You can then export everything to a single QuickTime movie, optionally recompressing some or all of the media. A preview mode lets you test your hot spots and links. However, VR SceneWorx lacks an undo feature, and its manual—like those of its siblings—is inadequate.

No-Warp Speed

Experienced VR producers will import a stitched panorama's PICT file into Photoshop, retouch it, and create a new panorama. The problem is that the contents of a stitched PICT appear warped, making many retouching jobs difficult or impossible.

With AdessoSoft's PanoTouch, a plug-in for Photoshop 4 and later, you use the PanoTouch Import command to open a stitched PICT; PanoTouch unwarps the PICT and displays it as a QuickTime VR movie, complete with zoom and pan controls (see "Retouching with PanoTouch"). Navigate to the area of the panorama you want to retouch and click on Import, and PanoTouch extracts that portion, unwarps it, and opens it as a new image file. The PanoTouch Export command automatically replaces that portion of the original stitched PICT, which you can convert to a panorama using the authoring tool of your choice.

On the downside, PanoTouch can't import and unwarp an entire stitched PICT at once. If you need to retouch several noncontiguous areas, you have to endure the import-export routine for each. PanoTouch can't work with partial panoramas, and the workaround (described in the excellent manual) is cumbersome.

Macworld's Buying Advice

VR PanoWorx and VR ObjectWorx are fine production programs, despite their shoddy documentation and colossal file sizes; VR SceneWorx is a reasonably priced, well-designed program that every serious QuickTime VR developer should consider. For casual VR producers, PanoTouch does too little and costs too much. But for VR professionals, PanoTouch is a genuinely useful, if pricey, tool for polishing panoramas.—JIM HEID

GUTS

GLORY

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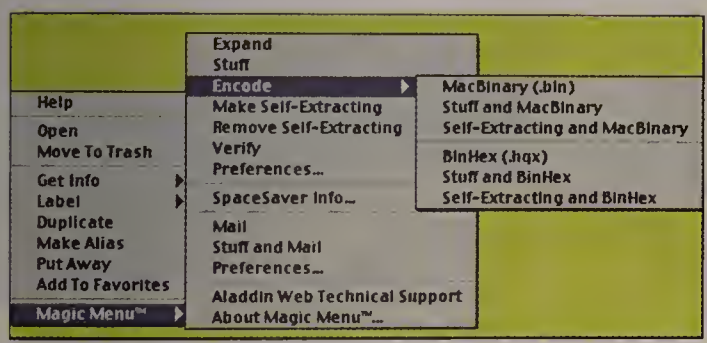
StuffIt Deluxe 5.0

COMPRESSION UTILITY RELEASED TOO SOON

OCCASIONALLY WE HAVE TO judge a flawed product even though we've been assured that fixes are on the way. Such is the case with version 5.0.2 of Aladdin Systems' StuffIt Deluxe, the default compression utility for the Macintosh. Although Aladdin has promised that StuffIt's bugs will be squashed in updates to be delivered by the time you read this, it's my duty to report on the current—rather than potential—state of this blemished product.

StuffIt Deluxe allows you to compress files and folders into StuffIt archives and expand just about any compressed file you're likely to find on the Internet. StuffIt SpaceSaver—now included with StuffIt Deluxe—offers background compression and expansion as well as name-based and label-based compression. Just include a user-definable keyword in a folder or file name or give an item a label, and SpaceSaver automatically compresses the item.



Revealing the Magic You can reach StuffIt Deluxe 5.0.2's many compression options via contextual menus.

And now to the bugs. First, StuffIt Deluxe 5.0's new cross-platform file format purportedly makes it easier to swap StuffIt archives between Macs and PCs. But although my Mac could open StuffIt archives that had been compressed on a PC, the reverse wasn't possible: Mac-compressed StuffIt archives refused to open on a PC with Aladdin Expander 2.0 for Windows.

Another bug involves StuffIt's True Finder Integration (TFI), which lets you convert files and folders into StuffIt archives, self-extracting archives (SEAs), and MacBinary and BinHex files simply by appending a .sit, .sea, .hqx, or .bin suffix, respectively, to the item's name. Under Mac OS 8.5, if you use TFI to convert a StuffIt archive into an SEA, StuffIt puts the wrong files in the SEA.

Aladdin claims that these kinks will be worked out by the time you read this. What the update won't address is StuffIt Deluxe 5.0's new file format: archives you create with this version can't be opened with an older version of StuffIt Deluxe or StuffIt Expander.

Aladdin claims that StuffIt Deluxe 5.0 increases compression by about 20 percent over previous versions, but that number depends on the files being compressed. Compressing a folder with 25 PICT files, StuffIt Deluxe 5.0 did create a smaller archive—100K versus Aladdin DropStuff 4.5's 116K. But when I stuffed a folder containing ResEdit 2.1.3 and all its components, the StuffIt 5.0 archive was 4K larger than its DropStuff 4.5 counterpart. StuffIt Deluxe 5.0 is also slower than version 4.5: on a 250MHz PowerBook G3, even with the Fast Compression option enabled, version 5.0 took 4 minutes and 10 seconds to stuff a 103MB folder; DropStuff 4.5 took only 3 minutes and 50 seconds.

Although Aladdin stumbled with this version of StuffIt Deluxe, the program's not *all* bad. Its many compression options are available via contextual menus, and the program now supports the MacBinary III format. You can view the contents of an SEA without expanding the file, by choosing Remove Self-Extracting from the Magic Menu that appears in the Finder's menu bar. And the included DropConverter utility lets you batch-convert old StuffIt archives to the new format.

Macworld's Buying Advice

StuffIt Deluxe 5.0.2 is buggy, slow, and likely to be incompatible with the version of StuffIt Expander you currently have. Let's hope these criticisms are now moot—that Aladdin has fixed the bugs and the compatibility problems, making StuffIt Deluxe once again worthy of our recommendation.—CHRISTOPHER BREEN

RATING: ♦♦ **PROS:** Batch conversion of old StuffIt files; can browse contents of SEAs. **CONS:** Buggy; files incompatible with older versions of StuffIt. **COMPANY:** Aladdin Systems (831/761-6200, www.aladdinsys.com). **LIST PRICE:** $80.

GUTS

GLORY

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job opportunities

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Web Programmer

Dallas: A small multimedia consulting firm is searching for a top-notch web programmer with programming ability in Perl, CGI, Java, Flash, and HTML. Director and Lingo knowledge is a definite plus. Will start out on a project basis. There is an opportunity to become a permanent member of the team.

Senior Mac Systems Engineer

Philadelphia: Distinguished national bank is seeking an intelligent and resourceful individual to provide high-end tech support for 200+ people. The successful candidate will have an advanced background in computer networking and operating within a highly dynamic, very conservative corporate environment. Certification in both Apple and Windows NT systems a plus.

Tech Writer

Boston: Software developer looking for an efficient, well-organized tech writer capable of handling multiple tasks. Must be proficient in FrameMaker and have at least 2 years of experience writing, editing, and proofreading user's guides and/or online help for computer applications. Knowledge of RoboHelp a plus.

Senior Visual Designer

San Francisco: Interactive technologies company [illegible] perfect match for this position. Must have URLs to s[illegible] understanding and experience with web technologies; [illegible] Illustrator and Debabelizer as well as HTML and Microsoft [illegible] 3-5 years combined web, print and CD ROM experience required.

UNIX System Administrator

Washington, D.C.: Large company looking for someone to take on primary technical responsibility for day-to-day management & support of UNIX and NT based computer systems and networks. This person will assist in planning and implementation activities related to these systems and networks. Ability to coordinate with other technical personnel to ensure smooth interaction with various computer systems.

Graphic Designer

Chicago: Creative and witty designer needed for full time permanent position. Job will require internal layout and production of books geared toward the general population. These books are image heavy and a knowledge of RGB and CMYK design issues is vital. Ideal candidate will [illegible]inal yet sensible style to their work. This well-known [illegible] the loop.

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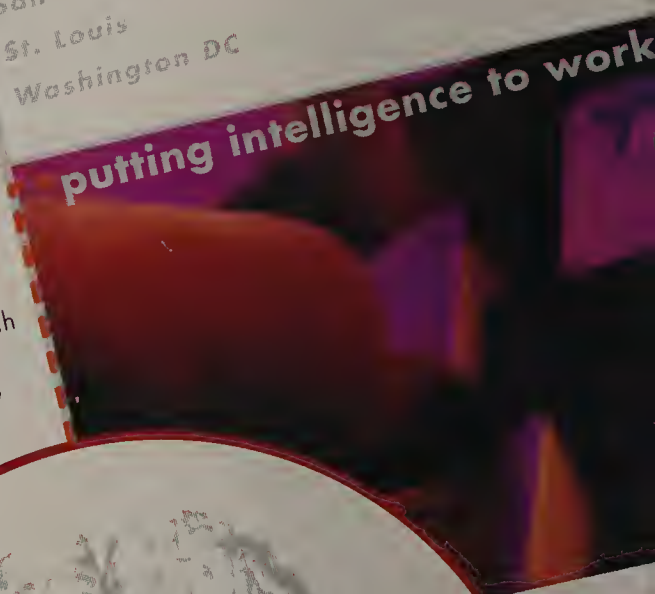

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After Effects Plug-Ins

BORIS AE 2.0 AND CINEMOTION OFFER SPECIAL EFFECTS, ENHANCED VIDEO PROCESSING

BOTH HOBBYISTS AND PROFESsionals will find a lot to like in two new and different sets of plug-ins for Adobe After Effects. Artel Software's Boris AE 2.0 should appeal to anyone looking for more variety in his or her special effects, while DigiEffects' CineMotion 1.0 for After Effects is designed for digital videographers looking for the best output quality. Both are important additions to any After Effects toolbox.

Movie Magic Boris AE 2.0 lets you map video onto basic shapes; here, a different movie appears on each face of a cube.

Boris AE is a compelling collection of 44 filters ranging from fun to functional, with filters for distortion, color correction, lighting, keying, special effects, and simple 3-D object mapping. Many of the plug-ins render noticeably faster than their After Effects equivalents—for example, the critical Unsharp Mask and Blur filters are twice as fast as After Effects' built-in filters, and more controllable to boot.

Another gem is the Pixel Chooser, an incredibly powerful option that lets you mask an effect very precisely with values derived from any other layer in the composition without using any additional After Effects masking techniques. The Digital Video Effects filter delivers a z-axis for "flying" elements, with built-in soft shadows, light sources, and opacity blends; a particle system offers customizable shapes and controllable velocity and gravity effects. But many After Effects users will want Boris AE just for its excellent distortion plug-ins, including an industrial-strength displacement filter.

For video artists looking to push the limits of captured video, CineMotion's extensions to 3:2 pull-down functionality surpass After Effects' built-in conversion capabilities. The documentation is disappointing, but CineMotion's ten plug-ins ease the process of making video look more like film and offer precise control over captured-video variables. The highlight is Film Motion, a filter that processes fields of video in various ways to yield different looks and gives you full control over interframe blurring, which simulates the motion of a camera shutter. Adjustable parameters let you tailor the effect to conditions in the processed footage.

Complementing Film Motion are plug-ins that enhance footage containing digital artifacts. These plug-ins give you fine control over banding, grain, noise, and field interlacing. Selective HSB Noise, for example, delivers separate noise values for a layer's hue, saturation, and brightness channels.

Macworld's Buying Advice

Both of these filter collections are worthwhile investments for serious After Effects devotees. Boris AE 2.0 has more-diverse special effects, while CineMotion for After Effects excels at optimizing video for professional applications. Both deliver exactly what they promise: a picture that will please *any* eye.—DAVID BIEDNY

Boris AE 2.0

RATING: ♦♦♦♦½ **PROS:** Wide range of effects; fast performance; great distortion filters. **CONS:** A bit pricey for the hobbyist market. **COMPANY:** Artel Software (617/451-9900, www.artelsoft.com). **LIST PRICE:** $495.

CineMotion 1.0 for After Effects

RATING: ♦♦♦♦ **PROS:** Excellent film-simulation effects; good control over shutter parameters and grain reduction. **CONS:** Weak documentation. **COMPANY:** DigiEffects (415/841-9901, www.digieffects.com). **LIST PRICE:** $299.

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Font Reserve 2.0

POWERFUL FONT MANAGEMENT

MANAGING FONTS ON YOUR Macintosh can be confusing and tedious, even if you use a suitcase-based font-management program such as Symantec's Suitcase or Alsoft's Master Juggler. Font Reserve 2.0 takes a different approach by eliminating the suitcase metaphor and letting you manage your fonts in a database. Whether you work with dozens of fonts or just a few, it's the most comprehensive and easy-to-use font-management software available today.

The heart of Font Reserve is a database browser that lets you view and manage the fonts in your system. The program automatically scans any local or remote hard drive for fonts and then stores information about each located typeface in a database. You can also load fonts without opening the browser—just drag them into a desktop applet.

Once you've loaded the fonts, you can designate each one as temporarily or permanently open. Font Reserve also supports font activation, which speeds your workflow by automatically activating a font when you open a document that contains it. The package includes a free QuarkXTension that enables automatic font activation in QuarkXPress, but Font Reserve can also activate fonts in many other programs, including Microsoft Word, Macromedia FreeHand, and FileMaker.

Font Control The Font Reserve Browser makes it easy to view and sort fonts.

Font Reserve's power is not limited to accessing fonts. Once inside the browser, you can use filters to display fonts that meet certain parameters—for example, TrueType faces that begin with the letter *Q*. You can sort fonts by a wide range of criteria, including type foundry and design class. You can also view and print type samples of selected fonts.

In addition to offering a font browser, Font Reserve ships with a control panel that lets you toggle the application on and off with no restarts, and hence no downtime in your workflow. The package also includes 40 Bitstream fonts. Font Reserve 2.0 is Mac OS 8.5–compatible, and—thanks to the new version's support for AppleScript—it can be fully automated.

Macworld's Buying Advice Some of Font Reserve's capabilities, such as sorting typefaces by foundry, may seem like overkill. But they show how DiamondSoft has taken a bottom-up approach to font management. Font Reserve 2.0 is more expensive than other font managers, but it is a must-have application for anyone who uses more than the standard set of Mac-resident fonts. You can also give it a trial: DiamondSoft offers a free, fully functional demo on its Web site, limited only in the number of fonts you can open.—ANDREW SHALAT

RATING: ♦♦♦♦½ **PROS:** Comprehensive, easy font management. **CONS:** Expensive. **COMPANY:** DiamondSoft (415/381-3303, www.fontreserve.com). **LIST PRICE:** $119.95.

Nothing is more colorful than real life.

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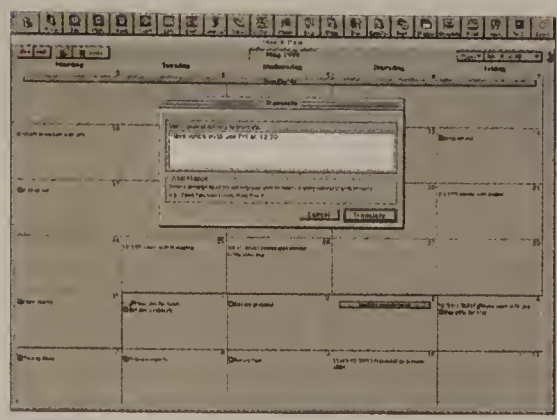
Consultant 2.5

PIM SYNCS WITH PALM ORGANIZERS

MAC USERS WHO WANT TO share contact and schedule information with 3Com's Palm family of handheld organizers don't have many options. The original Palm desktop software for the Macintosh was abysmally slow, and Now Synchronize, which was supposed to let you exchange data between the Palm and Qualcomm's Now Up-to-Date/Now Contact bundle, was limited and unreliable.

So, what's an organizationally challenged Mac user with PIM envy to do? An inexpensive Palm-compatible PIM—Chronos's Consultant—has been quietly winning converts among the Mac Palm crowd. Consultant 2.5.3 gives you most of the bells and whistles you'd expect in a PIM, including a full-featured contact manager and a calendar that offers day, multiday, week, month, year, Gantt, and list views.

Consultant sports a colorful, albeit cluttered, interface. Alas, unlike Now Up-to-Date, Consultant doesn't support timed to-do's or zero-duration events, and entering event times is more cumbersome than it could be. On the plus side, automatic word completion and telephone-number formatting help save keystrokes, and you can book events by describing them in plain English; Consultant translates your requests into calendar items, complete with links to the appropriate contact (see "Easy Events").



Easy Events Consultant 2.5.3 translates English phrases into date-book events.

If memory is tight, you might want to use the accompanying program called Mini-Consultant to look up and enter contact or schedule data; it uses only half as much RAM as the main application (about 1MB). By clicking on icons in the Finder's menu bar, you can also display telephone numbers for your favorite contacts or review the day's events—even if neither program is running. Pop-up alarms notify you of upcoming events, but you can't dismiss or snooze the alarms without having Consultant or Mini-Consultant open.

To use Consultant's Palm-synchronization feature, you'll need to download the latest version of the Palm conduit-manager software from 3Com's Web site. Data exchange between Consultant and my Palm III was generally reliable, and the online manual did a good job of explaining the rules that govern how individual fields are handled. The most glaring problem is that uncompleted to-do's on the Palm always show up on the current day in your calendar, even if they're due later.

Macworld's Buying Advice By the time you read this, 3Com may have shipped new desktop software based on Claris Organizer. Even so, Consultant 2.5.3 is a fairly good PIM in its own right. If you use a Palm organizer, download the demo version from Chronos's Web site and give Consultant a try.—FRANKLIN TESSLER

RATING: ♦♦♦½ **PROS:** Translates English descriptions into events; synchronizes with Palm organizers. **CONS:** No timed to-do's or zero-duration events; limited alarms; uncompleted to-do's appear on current day. **COMPANY:** Chronos (801/957-1774, www.chronosnet.com). **LIST PRICE:** $39.95 (with Palm synchronization, $49.95).

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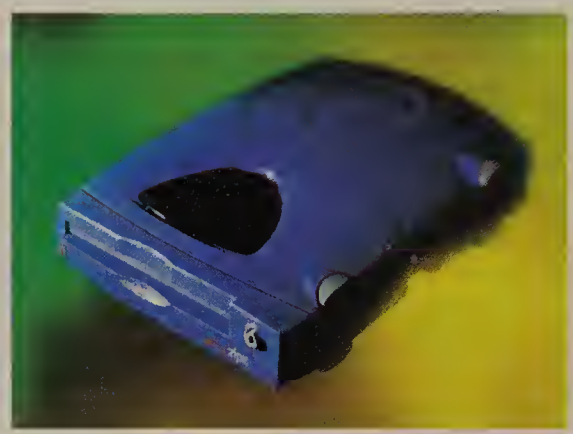
Iomega Zip 250

REMOVABLE-MEDIA DRIVE

WITH HIGHER-CAPACITY MEDIA, more polished software, and an improved enclosure, the new 250MB Zip drive is a good product made even better. The $199 unit reads and writes to Iomega's new $16.99 250MB cartridges, but also supports 100MB Zip media. While it has a few annoyances, the Zip 250 is a good buy.



SUZANNE ROADY

The drive is housed in a familiar purple enclosure, but with a few improvements. The unwieldy power brick in the original Zip drive has shrunk to the point where the word *brick* seems a misnomer. The drive now also features a power switch in front. On the downside, it still supports just two SCSI IDs, 5 or 6, and the case still rattles when you shake it.

When reading or writing a file to the new 250MB media, the new Zip is zippier, offering a 40 percent performance boost over the old drive. However, the new drive is a bit slower than the original when writing to 100MB media.

With the original Zip drive, Iomega put its software utilities on the included Zip cartridge, inviting users to install the software and then overwrite the cartridge. IomegaWare now comes on a CD-ROM that includes Mac and PC versions.

Iomega has honed its Tools application, which lets you create a rescue disk with a complete or minimal System Folder and a copy of Apple's Disk First Aid software. After a system crash, you can boot from the cartridge and check the internal drive.

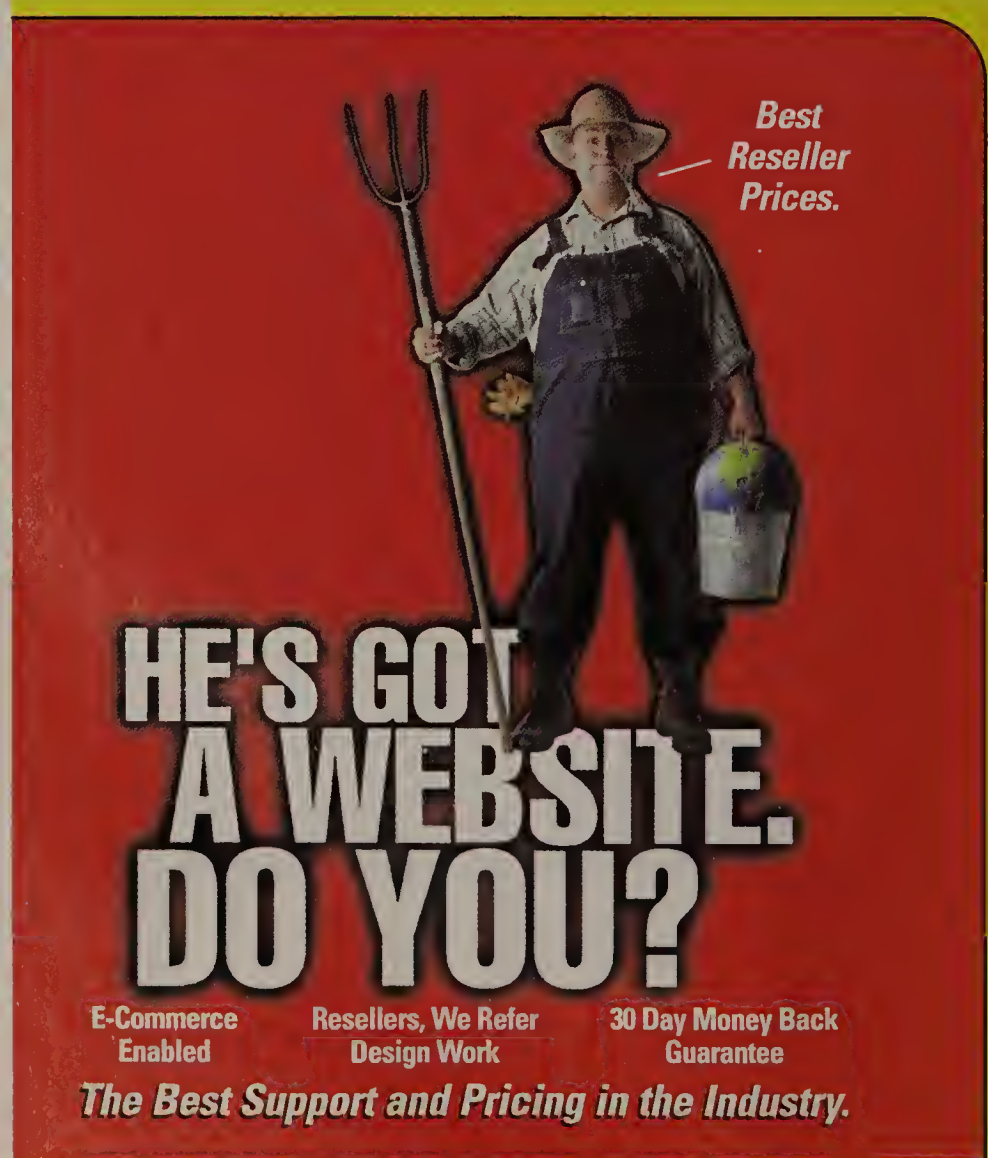
The software also lets you add copy protection to Zip cartridges. However, the interface is vexing; the opening window presents a set of icons with no labels. The only way to use the program is to take a guess and click on a button.

The CD also includes an easy-to-use audio-capture application called RecordIt, which lets you copy songs from an audio CD or record voices with the Apple microphone. You can then store these sounds on your Zip disks for playback. However, Zip disks are no match for a CD—the RecordIt player pauses frequently during normal computer use.

Macworld's Buying Advice Iomega has reason to crow, as the new Zip drive improves on an already strong product. Thanks to the popularity of the original drive, Zip cartridges remain a good way to share data with coworkers. With the new higher-capacity media, the Zip is now more attractive as a backup device. However, Zip disks, while generally reliable, are not the sturdiest removable media you can buy. If you plan to use the drive for archiving, you'll need to purchase backup software and make multiple backup sets.

Iomega will continue to sell the 100MB drive through 1999, and plans a USB version of the Zip 250 for the second half of the year.—KRISTINA DE NIKE

RATING: ♦♦♦♦ **PROS:** Higher-capacity media; backward compatible with 100MB media. **CONS:** Cryptic software interface; limited SCSI ID choices. **COMPANY:** Iomega (801/778-1000, www.iomega.com) **LIST PRICE:** $199; 250MB cartridge, $16.99.



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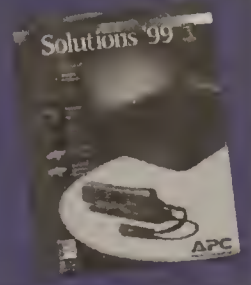

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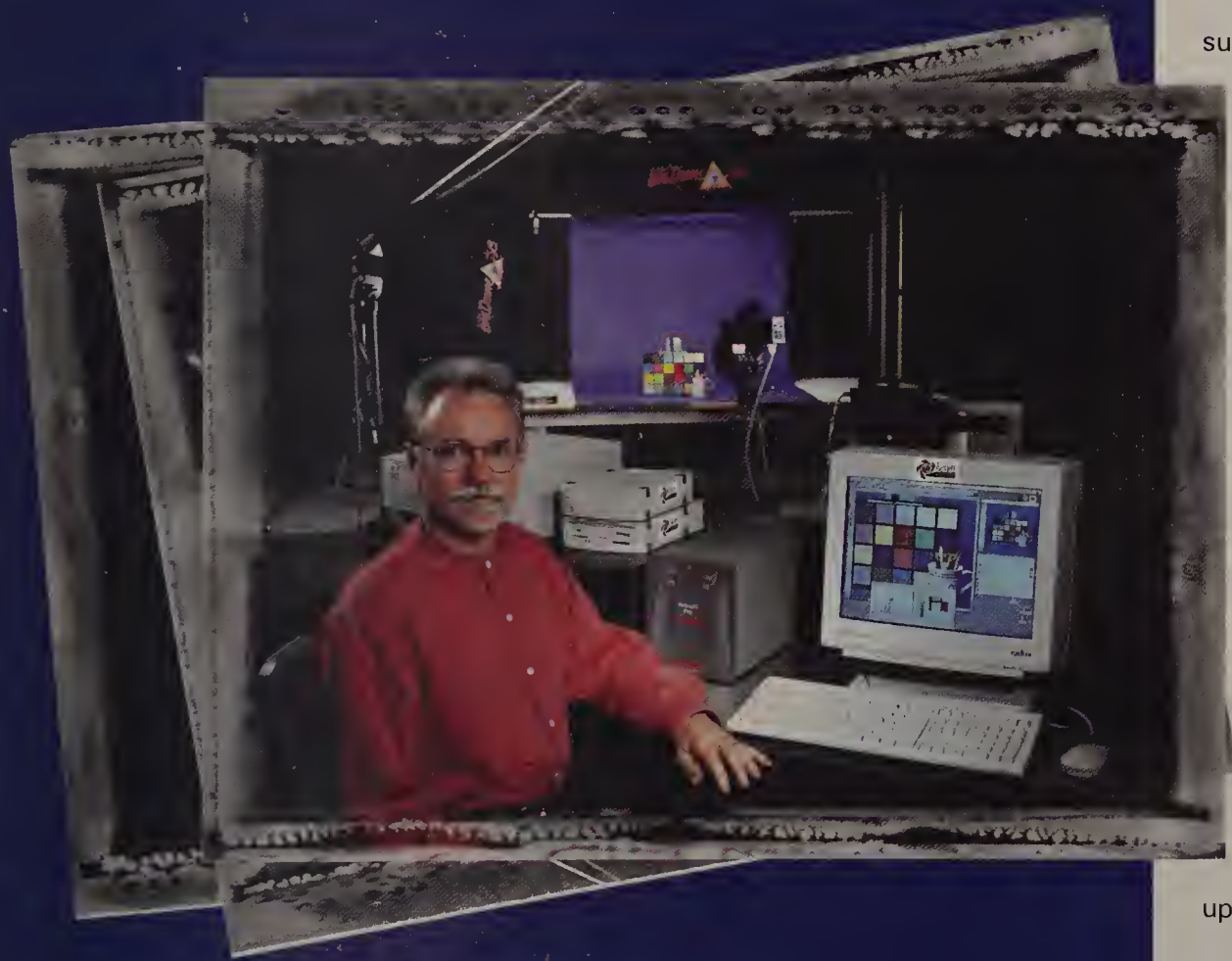

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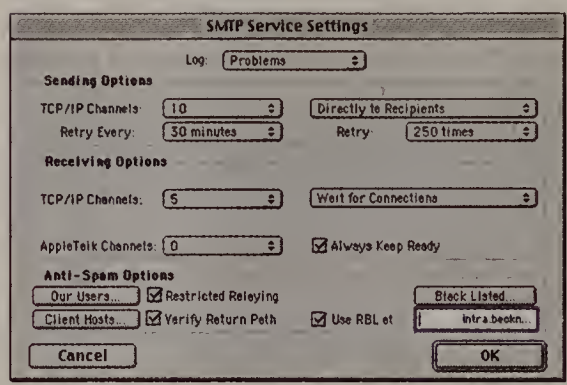
CommuniGate 3.0

MAIL SERVER FIGHTS SPAMMERS

THE DELUGE OF SPAM ON THE Internet is threatening to seize, rather than grease, the wheels of progress. Users swamped with unwanted advertisements are desperately seeking relief, and Stalker Software's CommuniGate 3.01 mail server delivers it. Several new Internet mail features help categorize and filter messages, and new security features prevent spammers from using your server to relay mail to others.

CommuniGate consists of files containing the main server; a client application; various administrative tools; and individual gateway modules for POP, SMTP, UUCP, mailing lists, faxing, printing, and paging. New in this version is an address-book service module, for publicly publishing e-mail–address directories. This release also includes, at long last, an installer application, along with excellent HTML-based documentation. As with previous releases, you must obtain activation codes for each module you intend to buy beyond the LAN-based server-and-client bundle.

CommuniGate's SMTP module controls spam in several ways. First, and most important, it makes a distinction between local and remote users based on the originating IP address, allowing local users to relay messages to the Internet. You give selected remote users the same privileges by flagging them as "friends," preventing spammers from using the server as an intermediate relay station. Second, it can verify return addresses to ensure they're accurate; spammers often use forged or illegal return addresses. Third, it checks your local blacklists to reject mail from known spam sources. Finally, it can check external blacklists that others maintain.



E-mail Embargo CommuniGate 3.01 not only lets you prevent spammers from relaying mail but can also block incoming spam by verifying return addresses and checking externally maintained blacklists.

These features, as well as the program's existing support for MIME content, make CommuniGate an excellent e-mail server. Alas, CommuniGate's client hasn't kept up with the times: it doesn't display MIME or HTML data in its message browser, storing them instead as attachments that you must process using external programs. Users today consider MIME and HTML display essential. An alternative is to use an e-mail client with this support, such as Qualcomm's Eudora or Netscape's Messenger, in conjunction with the CommuniGate server components.

Macworld's Buying Advice With its modular architecture, multiple gateways, MIME support, and excellent spam control, CommuniGate 3.01 is a powerful mail server. Combine it with a MIME- and HTML-capable mail client, and you've got yourself a first-rate Internet and LAN e-mail solution.—MEL BECKMAN

RATING: ♦♦♦♦ **PROS:** Inexpensive; antispam features; multimedia gateways. **CONS:** Mail client can't display MIME and HTML data. **COMPANY:** Stalker Software (415/383-7164, www.stalker.com). **LIST PRICE:** 25-user LAN-only gateway and client, $200; configured for Internet with POP and SMTP gateways, $300; other gateway modules, $100 each.

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Ellen Crawford, Designer

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Monsoon MM-1000 Speakers

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TIME FOR A WORD-ASSOCIATION test. I say *coffee;* you say *tea.* I say *sky;* you say *cloud.* I say *computer speakers;* you say . . . *tinny?* If so, it's time to change your tune. Sonigistix has released the Monsoon MM-1000 Amplified Multimedia Speaker System—a satellite-subwoofer speaker combination that may alter your expectations of how computer speakers should look and sound.

As soon as you unpack the box, you'll notice that the two satellite speakers are a scant half-inch deep. These speakers are based on planar magnetic technology, a design—typically found in high-end stereo speakers—that doesn't require traditional speaker cones and deep enclosures.

Planar magnetic speakers have a tough time creating low bass frequencies, which is where the Monsoon's subwoofer comes in. This four-slot, toaster-size black box sits under your desk, and its 5.25-inch speaker produces enough bottom-end sound to satisfy music lovers and gamers alike. You can adjust the bass with a knob on the front of the subwoofer. Regrettably, there's no way to change the left-right balance of the satellite speakers and there's no on/off button.

SUZANNE ROADY

In addition to the bass control, the subwoofer's front end features a volume control and a bass-boost button. The back of the subwoofer sports two miniplug stereo inputs, connectors for the satellites' bare-wire leads, and an input for the lightweight remote control.

Good design is nice, but the proof of a speaker's worth is the sound it produces. Because of their small size and inexpensive components, most computer speakers are a collection of compromises—certain frequencies are artificially boosted or cut to make the speakers sound lively or to produce thumping low frequencies.

From this listener's point of view, such is not the case with the Monsoon speakers. They deliver well-balanced, transparent audio and have more in common with a good pair of home-stereo speakers than with typical computer speakers. High frequencies are readily apparent without being shrill, middle frequencies lack the boxiness found in most computer speakers, and the low end is rich but not thumpy. The sound will also please gamers. There's a nice sense of separation—important when you need an audio clue to tell you where the next intergalactic cootie lurks—and the subwoofer offers enough oomph to enhance the effect of any game's exotic weaponry.

Macworld's Buying Advice If you can afford the $229 price tag, get these speakers. They are glorious.—CHRISTOPHER BREEN

RATING: ♦♦♦♦½ **PROS:** Wonderful sound; cool flat-panel design. **CONS:** A little expensive; no on/off switch. **COMPANY:** Sonigistix (501/372-0366, www.monsoonpower.com). **COMPANY'S ESTIMATED PRICE:** $229.

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Myth II: Soulblighter

UPDATE IMPROVES ON PERFECTION

AFTER TWEAKING THE LAST few lines of code in the real-time strategy game Myth: The Fallen Lords, the folks at Bungie must have felt a bit like Michelangelo after applying the final daubs to the Sistine Chapel: "Not bad, but what are we going to do to top this?" The original Myth offered beautifully rendered 3-D terrain, a solid tactical element, superb physical modeling, free Internet gaming via bungie.net, cross-platform play, and support for 3Dfx-based hardware acceleration. Could the company produce a compelling sequel that wasn't a regurgitation of the original? In a word: yes.

Although Myth II maintains nearly all the elements of the original, the sequel refines rather than reiterates. You continue your battle with the forces of the Dark, but this time you discover a more detailed world in which the legions of both Light and Dark have an expanded set of characters, all with embellished abilities. Bowmen now carry a flaming arrow for setting grass afire—a wonderful tactical enhancement for discouraging or fricasseeing your opponents. Regrettably, your troops are all too willing to march right into the same fire. And as if the too-quick-on-the-draw dwarfs from Myth I weren't nuisance enough, Myth II includes mortar dwarfs who fire deadly—although inaccurate—projectile weapons.

Turning Myth into Reality This castle wall is just one of Myth II's environmental enhancements.

Bungie has also improved Myth's interface. All formations are now mouse selectable in a small menu bar at the bottom of the game screen, and rotating troops is easier—just select them and use the arrow keys to pivot.

The range of environments is wider in Myth II: you'll have occasion to fight indoors, within the walls of an enemy castle, and on board a ship. Animated 3-D objects such as windmills and drawbridges add to the visual luster of the game. Squeamish players can now turn off the blood and gore. Two powerful but complex editing tools let you alter game elements and create maps. And Myth II supports RAVE 3-D hardware acceleration on systems that carry at least 32MB of RAM and a Rage Pro or Rage 128 chip set.

Oh, and one more thing. Myth II is a kick to play—in single-player mode or against human opponents.

Macworld's Buying Advice Bungie has done a marvelous job of enhancing what was already a stellar game. It's a foregone conclusion that fans of the original will buy Myth II: Soulblighter. If you have the slightest interest in real-time strategy games, check it out.—CHRISTOPHER BREEN

RATING: ♦♦♦♦½ **PROS:** Interface and graphics refinements; RAVE support. **CONS:** Troops are a bit dim about the hazards of fire. **COMPANY:** Bungie Software (312/397-0500, www.bungie.com). **LIST PRICE:** $49.

OUR EDITORS CAN BEAT UP THEIR EDITORS

MATTHEW ROTHENBERG
Director of Online Content, Mac Publishing L.L.C.

INDUSTRY EXPERIENCE
Joined *MacWEEK* in 1990

Broke scoops on Apple's first Power Macs and successive models as well as its first scanners, cameras and color printers; Adobe's Photoshop 5 and K2 DTP packages; QuarkXPress 4.0; and innumerable other products.

Ran *MacWEEK's* print-news operation, then led its transition from print to the Web.

BACKGROUND
Traded in his manual typewriter for a state-of-the-art Mac SE in 1988. Bitten by the DTP bug, Matthew paid his dues as a publishing consultant before breaking into MacWEEK's mail room. Matthew has served MacWEEK as a speaker and agent provocateur at industry trade shows across the United States and Europe.

MacWEEK.com
www.macweek.com

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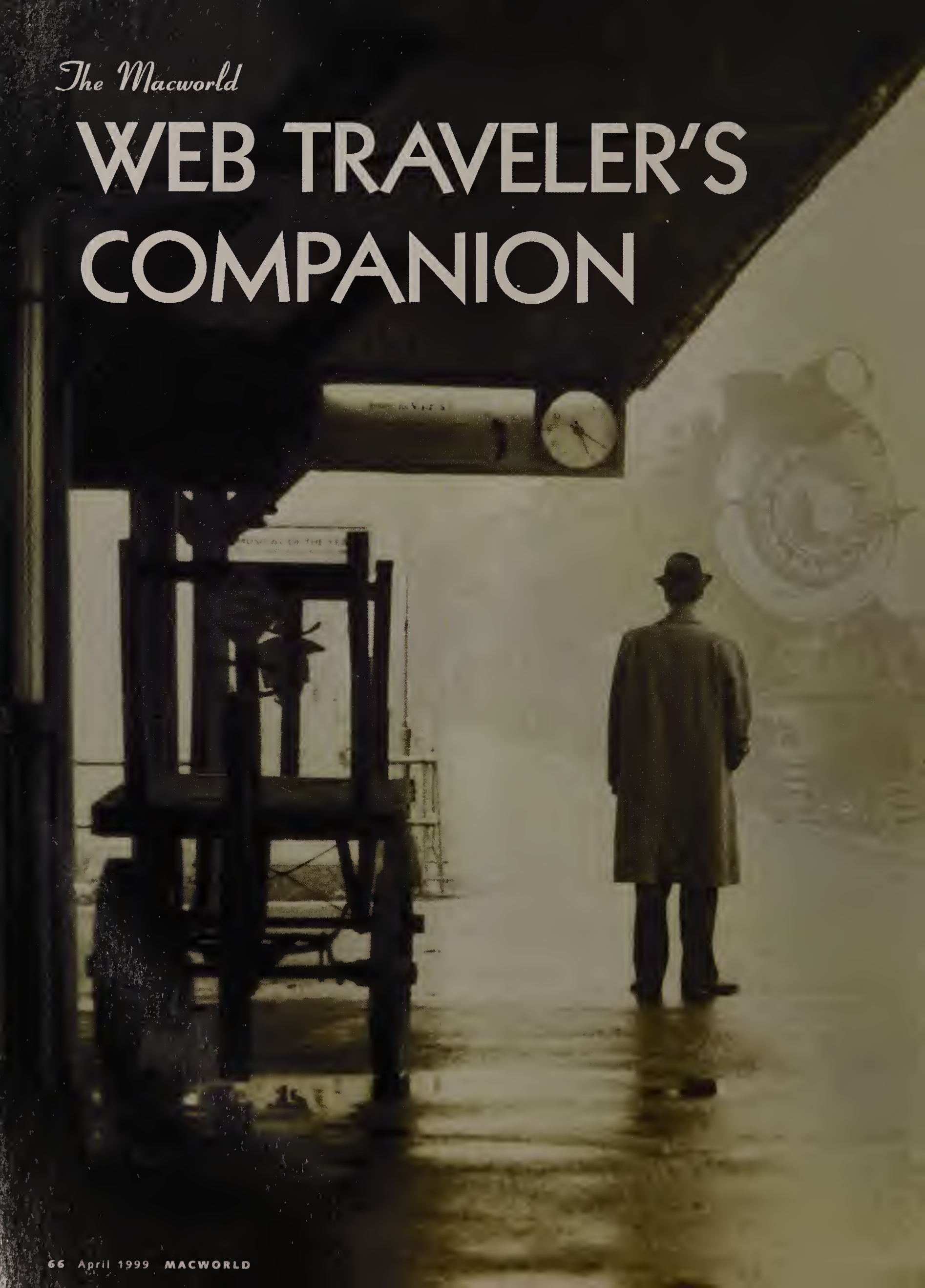
WEB TRAVELER'S COMPANION



This Guide Will Help You See the Best Sites and Roam the Net with Ease

It's a beautiful day. You're seated comfortably, with your hands on the keyboard and your modem cranked up to maximum throughput. You've got nothing in front of you but the open road and your favorite Web browser. Where do you go from here?

They don't call it the *World Wide* Web for nothing. New sites appear every day, offering everything from news and information to an opportunity to spend money or play a game. You will never have time to visit every site on the Web, but with help from us you can hit the highlights. We've found some of the best sites on the Web for your journey, named the best browser (see the sidebar "Picking Your Ride: The Best Browser"), compiled essential search tips (see the sidebar "Finding Your Way: Top Search Tips"), and even found utilities to help you en route (see the sidebar "Your Packing List: Essential Web Utilities"). We'll leave the driving to you.

by Shelly Brisbin

MAC-CENTRIC SURFING

The Mac and the Web go way back. Hundreds of sites feature Mac products, shareware, news, and evangelism. Many of the best ones are run by individuals whose work is fueled by love for the Mac.

BEST TROUBLESHOOTING SITE

MacFixIt (www.macfixit.com)

Operated by author and *Macworld* contributing editor Ted Landau, MacFixIt is both a running commentary on Mac OS developments and the home of detailed troubleshooting advice for everything from hard disks to digital cameras.

The site is searchable and is updated three times a week. MacFixIt users are quick to find bugs and conflicts, and they regularly contribute tips and suggestions, making the site a true treasure of the Mac community.

If you're in need of serious Mac help, make sure you also stop in at the Apple Tech Info Library, a.k.a. TIL (http://til.info.apple.com). This searchable archive contains technical notes, product data sheets, and other documents about every Apple product. If you're willing to wade through a massive amount of information, you'll probably find your answer here.

BEST MAC SHOPPING SITE

MacConnection (www.macconnection.com)

Like a number of online and catalog retailers, MacConnection is part of a larger site that's devoted to computer products for Windows PCs. Unlike most of these Mac site segments, however, MacConnection has its own front page and won't spit out a bunch of parallel-port peripherals when you search for a printer or backup device. The site is well organized and fully stocked with Macs, peripherals, and software. The search feature is easy to use, and the prices, while not rock bottom, are fair.

If you're looking for a used Mac or for parts and peripherals for older systems, another site will fit the bill: MacWorks (www.macworks.com).

BEST SHAREWARE SITE

Info-Mac HyperArchive (http://hyperarchive.lcs.mit.edu/HyperArchive.html)

Info-Mac, the giant shareware archive housed at MIT and mirror sites around the world, is the granddaddy of all Macintosh-shareware sites. The HyperArchive Web site, hosted by MIT's Laboratory for Computer Science, is a bare-bones search interface to the Info-Mac library that leads to abstracts of each file and a download link. We recommend this site because of the sheer volume of the archives and the absolute dedication of the volunteers who work to keep it up.

PREVIOUS PAGES—PHOTOGRAPHY BY MARK JOHANN / BACKGROUND IMAGE FPG
ILLUSTRATIONS BY PAUL ROGERS

Picking Your Ride: THE BEST BROWSER

EVERY INTERNET TRAVELER NEEDS A BROWSER—THE SOFTWARE that serves as your window to the Web. Although any browser will display Web pages and keep track of your favorite sites, the contenders differ in style and performance. The good news is that choosing the wrong Web browser won't cost you a dime. Netscape Communicator and Microsoft Internet Explorer are both free, and you'll find a copy of each included with Mac OS 8.5. The bad news is that *each* of these applications mixes nifty features with annoying inconveniences.

The Contenders The first thing you should know is that your browser is probably outdated, especially if you're using a version that came with the Mac OS. On the Mac OS 8.5 CD, Apple shipped Internet Explorer 4.01 and Netscape Navigator 4.0.5 (Netscape's older standalone browser, which doesn't include features built into the mega-application Netscape Communicator). Here, we concentrate on version 4.5 of both Internet Explorer and Netscape Communicator, available from the respective companies' Web sites as large downloads.

Bigger and Slower Netscape's browser has put on weight: what was once a simple Web browser (Navigator) is now part of Communicator, which includes e-mail and news clients and a Web authoring application. As a result of its bulk, Communicator can require twice the RAM of Internet Explorer and takes up lots more disk space. The Internet Explorer bundle also includes a news and mail client, but it's a separate application (Outlook Express).

Although Communicator takes the booby prize for biggest browser, both applications suffer from a lack of speed. Communicator seems to take you to Web pages a bit more quickly, but each browser requires the same amount of time to complete a complicated page. Their slowness is particularly noticeable when you compare Communicator or Internet Explorer with Navigator 4.07, the older, browser-only offering from Netscape (still available from Netscape's Web site) that delivers pages in much less time.

Besides its own RAM bulk, another factor that slows down Communicator is the program's preinstalled browser plug-ins. These add substantially to RAM demands. You can trim Communicator's bulk by removing plug-ins you don't need.

Unfortunately, Internet Explorer's slowness can't be blamed on plug-ins or other extras. This make its performance that much more disappointing. Its only performance advantage is that text elements load first (Communicator loads them only after building the page), making it possible to scan an Explorer page while it's still being drawn on your screen. You might even decide to move on to another page before Explorer gets around to filling in ad banners or navigation elements—a potential time-saver.

Communicator *does* beat Internet Explorer hands down when it comes to rendering Dynamic HTML (DHTML) animation. Communicator positions and rotates images correctly and efficiently. Explorer, on the other hand, often bungles or drops DHTML objects and delivers those it can handle at a painfully slow pace. If you need to view DHTML pages, stick with Communicator, despite its other limitations.

Style Points Each browser includes a selection of clever features that help you surf more efficiently, but Internet Explorer's are more elegant. In Internet Explorer, URLs autocomplete as you type, as do Web-based form fields if you've entered information about yourself (name, e-mail

SHOPPING

With a Web browser and a credit card, you can find and buy just about anything online. The good sites offer secure transaction processing to protect your credit-card number from theft. Most online stores also offer fast delivery and competitive prices. Watch out for e-stores that charge high shipping rates, and be sure to compare prices with those of other sites. You may be surprised how much of a difference there is.

BEST PLACE TO FIND A DEAL

CompareNet (www.comparenet.com)

Here you'll find electronics, home office equipment, automotive items, sports equipment, and lots more. CompareNet isn't a department store, however; its primary function is to help you narrow down a list of products and compare them, based on price and features. With that information in hand, you can click on a CompareNet partner link to go to a commerce site and make a purchase. The site's comparison criteria are well chosen, and the ability to create a custom table of just the products you're interested in is very slick.

BEST MUSIC STORE

CDnow (www.cdnow.com)

Selection and depth are two major reasons to shop for music at CDnow. True, the prices are not the lowest you will find online, but they are somewhat below retail and sales are frequent. Devotees of a particular artist can even find listings here of compilation CDs that contain songs the artist recorded.

Music Boulevard (www.musicblvd.com) offers a bit less selection but includes a tremendous amount of artist information, including links to album and concert reviews and feature articles.

BEST COLLECTIBLES SITE

eBay (www.ebay.com)

This massive auction site is a treasure trove of stuff, both modern and collectible. It connects sellers and buyers of just about anything that people can collect, ranging from sports memorabilia to old coins, records, and movie posters. Since eBay is an auction site, it is a wild and woolly place. When you bid on and buy items, eBay acts as an intermediary for the auction; you actually purchase goods from individuals or businesses that list items on eBay. Because you must take the seller's word for the condition and value of mer-

address, street address, and so on) in your preferences. Explorer also adds a Sherlock-integration feature, available from the Location bar. Under Mac OS 8.5, you can choose to open Sherlock and use it to search for sites that are similar to the one you're browsing. However, Communicator offers a more useful option—it lets you search for "related" sites. This feature is similar to Explorer's Sherlock tool but more elegant, because it doesn't require a switch to Sherlock and it generates a list of suggested links that are available from an unobtrusive pull-down menu.

Keeping Things Organized Although both browsers do a good job managing bookmarks and the browser window, Internet Explorer offers the most innovative tools. Explorer's main contributions to desktop-management elegance are the four tabs (Favorites, History, Search, and Page Holder) on the left side of the screen. Clicking on one of these tabs displays a narrow pane that allows you to view, for instance, your bookmarked links or a history of your surfing activity organized chronologically. Explorer's Page Holder, new in version 4.5, lets you instead place a Web page in the small windowpane. You can then click on links and see the resulting pages in the main browser window.

Getting It Down on Paper If you print Web pages, you'll find that Explorer does a better job of rendering colored and shaded headings and boxes than does Communicator. Communicator often drops shading and text in shaded areas. Explorer also wins points for its Print Preview feature, which even lets you shrink a page to fit on paper.

Browser Autopilot Microsoft likes to tout its browser's Mac-savviness, including support for themes and other Mac OS features. Internet Explorer *is* the only browser that lets you download sites for offline browsing. However, both Microsoft and Netscape have held back on at least one major feature available to Windows users—the automatic updating of browser software when new versions are available.

Windows PC users of Communicator and Internet Explorer can set their browsers to notify them when updates are ready and ask if they want to automatically install the new software. Mac users must still check the Netscape or Microsoft site for new browser versions and download them in the traditional way.

To its credit, Microsoft did bring its drag-and-drop software-installation method over from the Office suite to the Mac version of Internet Explorer. However, using it may mean you lose existing plug-ins or anything else you have stored in your current Internet Explorer folder. Favorites and other preferences, which are stored in the System Folder, are preserved.

Macworld's Buying Advice Internet Explorer ekes out a narrow victory over Communicator, primarily because of its clever timesaving features and smaller RAM footprint. Offline browsing, site subscriptions, and superior printing also give it a leg up on Communicator.

Still, Communicator is the clear choice for viewing DHTML animation and offers a helpful search tool. The browsers *are* free, so if you have the room, we suggest you keep them both on your hard drive.

Microsoft Internet Explorer 4.5

RATING: ♦♦♦½ **PROS:** Easy access to bookmarks and surfing history; site subscriptions; offline browsing; excellent printing options. **CONS:** Poor DHTML support; slow. **COMPANY:** Microsoft (425/882-8080, www.microsoft.com). **LIST PRICE:** Free.

Netscape Communicator 4.5

RATING: ♦♦♦ **PROS:** Superior DHTML support; collapsible tool bars; smart browsing locates pages without a URL. **CONS:** No autofill features; potentially high RAM overhead from tightly integrated mail and composer tools; poor printing options. **COMPANY:** Netscape Communications (650/254-1900, www.netscape.com). **LIST PRICE:** Free.

chandise you buy, be particularly cautious as you make your purchases.

BEST TRAVEL SITE
MSN Expedia Travel
(www.expedia.msn.com)
Price a trip right from Expedia's front page, and compare prices even without giving a password. Registered users can purchase tickets and save and print itineraries. Expedia includes a full range of travel information, maps, and trip-planning tools to help tourists and business travelers price and route their trips.

Try TheTrip.com (www.thetrip.com) to track flights so that you know when to pick up visitors at the airport.

PERSONAL FINANCE

Money management is among the hottest topics on the Web, because so many people are interested in financial planning and investment and also because the Web is an excellent medium for viewing, calculating, and manipulating numbers. Many major money sites offer educational information as an enticement to subscribe to a more detailed version of the service, while others offer online brokerage, loan services, and other financial products with the advice and free stock quotes.

BEST MONEY-MANAGEMENT SITE
Quicken.com (www.quicken.com)
Quicken.com offers a bit of everything for those interested in keeping track of their money. You'll find financial tutorials, tax planners, mortgage calculators, retirement planners, investment-research features, and lots of great money-management tips and tricks.

BEST INVESTMENT TOOL
MSN MoneyCentral Investor
(http://investor.msn.com)
Like Quicken.com, Microsoft's money site offers a wide array of information and services, but MoneyCentral Investor is primarily geared toward those seeking to analyze and manage an investment portfolio. Among its standout features are custom portfolio tracking and detailed company research for investors.

Check out Morningstar.Net (www.morningstar.net) if you're particularly interested in tracking mutual funds. Morningstar is a well-regarded mutual-fund rating service and offers a dizzying array of information about thousands of funds. Both MoneyCentral Investor and Morningstar.Net offer more in-depth data for paid subscribers.

REFERENCE

Reference sites make it easy to find words, statistics, maps, and just about anything else you might find in dusty books on a reference shelf.

BEST WORD REFERENCE
Merriam-Webster
(www.m-w.com/dictionary.htm)
Simple to use but full-featured, the Merriam-Webster site provides definitions, synonyms, and antonyms for common (and not-so-common) English words. Unlike some online dictionaries, Webster's is nice enough to check your spelling. It also offers alternatives to words it can't locate.

BEST GEOGRAPHICAL REFERENCE
World Factbook
(www.odci.gov/cia/publications/factbook/index.html)
The CIA's World Factbook is not a guide to intelligence activities but a wondrous collection of information about the geography, climate, people, governments, and customs of the world, arranged by region and country. It's updated annually.

BEST MAP SITE
MapBlast (www.mapblast.com)
Type in a street address and MapBlast shows you a map of the neighborhood. You can get driving directions (complete with a choice of the fastest *or* easiest route to follow). You can also search for area lodging, restaurants, business services, transportation, and much more. The site makes it easy to print or e-mail your map, and zoom in and out to get a better look.

BEST LIFE-SKILLS LEARNING SITE
Learn2.com (www.learn2.com)
The answers to questions you're afraid to ask (for risk of appearing silly) can often be found at Learn2.com. There's information and instruction on all sorts of everyday tasks, such as changing a tire, applying eyeliner, or shipping a bicycle. You can search or simply browse a selection of categories, including automotive, health and fitness, and travel.

NEWS

Online you can find news tailored to almost any interest. Most well-regarded news outlets have their roots in print or broadcast media, but a few online-only players have gained a reputation for speed and depth of coverage in a particular field.

BEST PLACE TO FOLLOW BREAKING NEWS
ABC News.com (http://abcnews.go.com)
It's an interesting fact of Web life that sites run by television networks can be among the best places to find timely and detailed news coverage. The ABC News site does not usually include in-depth analysis, but it does cover a wide range of news, including politics, health, technology, and sports. The site is updated throughout the day. True to its TV parentage, ABC News.com offers streaming video, via RealPlayer, but there's a lot to like about the site even if you're a reader rather than a watcher.

If you're following a story closely, also check close runner-up CNN (www.cnn.com).

BEST FREE SOURCE OF BUSINESS NEWS
CBS MarketWatch
(www.cbsmarketwatch.com)
Business news is easy to come by on the Net, but more and more sites are charging subscribers for access to a large portion of their content. One exception is CBS MarketWatch. It combines investor-oriented business news, updated throughout the day, with analysis of market activity and with special-interest sections. These include sections on legal issues, tech stocks, international business, and columnists' commentary.

If you have some money to spend, you should give the Wall Street Journal Interactive Edition (http://interactive

Finding Your Way: TOP SEARCH TIPS

THERE IS AN INCREDIBLE AMOUNT OF INFORMATION ON THE Internet, but you can't make use of what you can't find. Whether you use Mac OS 8.5's Sherlock or a Web-based search site, follow these tips to design searches that take you where you want to go—straight to the information and resources you're most interested in.

Most of these techniques apply to searches conducted both with Web-based search engines and with Sherlock. Sherlock allows you to query several search engines at once, which means not only that you will get the widest possible array of responses but also that you'll need to filter those responses carefully.

Start with Yahoo If you want to find lots of good information about a broad topic, *without* wasting your time on obscure links, make Yahoo (www.yahoo.com) your first search stop. Yahoo is a good place to start, because it's both a directory and a search engine. Not only can you browse to find groups of sites within a broad category but you can also type in a search request that brings back farther-flung results.

Why is this is helpful? When you're doing a simple search, you want a good mix of information, but preferably without an overwhelming amount of junk. Yahoo first searches its well-organized directory to find matches to your query, only afterward turning to more-random keyword matching. Extra bonuses: Yahoo's interface is uncluttered, and the hierarchical catalog is easy to browse and understand. Yahoo also forgoes the "in your face" commercialism of some competitors that offer shopping opportunities along with legitimate search results.

Cast a Broad Net If you don't have any idea what the Web has to offer on a given topic and want to view as many search results as possible, try a *metasearch*—in other words, make use of several search sites simultaneously. Both Sherlock and MetaCrawler (www.metacrawler.com) allow you to do this. MetaCrawler gives you a wide choice of general-purpose search sites, such as Infoseek and Lycos. Sherlock allows you to search any site for which you have a plug-in installed, including such special-interest sites as Info-Mac and Amazon.com.

Keep Focused If you *do* have a good idea what you're looking for, make your search as specific as possible. This will limit the number of unrelated search results you'll receive. For example, search for *Bengal cat breeders* rather than just *Bengal* to avoid getting back a long list of sites about tigers, Indian provinces, and the pro football team in Cincinnati. If you don't get enough results when you do this, it means your initial search was too narrow. Try removing one word of the query, say *breeder,* to retrieve more results.

Look for an Exact Match One way to be even more specific is to put quotation marks around your search strings. Doing this tells most search engines that you want items that include the words you've specified only when those words appear *as a phrase.*

Search by Proximity If search terms don't necessarily form a contiguous phrase but are likely to occur close to one another, try a more advanced, *near* search. You can experiment with this using AltaVista's (www.altavista.com) Advanced Search. Just enter your complete query in the search box. For example, *"tropical fish" near aquarium* will find references to tropical fish that live in aquariums, rather than the ocean-going kind. This search will deliver more results than *tropical aquarium fish* and omit references to unwanted nontropicals.

Try an Advanced Search By now, you may be starting to wonder what else is possible if you can do something as obscure as search for terms that are near each other. Indeed, *near* is just the tip of the conditional-search iceberg. Conditional, or Boolean, searches give you more flexibility to find what you're looking for when using most search engines. You can narrow a search or widen it by using special terms, such as *and, or,* and *not,* between your search words. For example, another way to find out about your favorite feline without reading up on its bigger cousins would be to search for *"Bengal cat" NOT tiger.*

Some search engines require you to enter the separators in uppercase. Others require (or allow) you to use timesaving symbols instead: the plus symbol (+) for *and,* and the minus symbol (-) for *not.* If you're having trouble, check the search engine's help area to find out the engine's particular way of doing things.

Ask a Question Natural-language searching lets you ask a plain-English question, such as "What is Joe DiMaggio's lifetime batting average?" Only a few search engines, including AltaVista and InfoSeek, can do this type of search. Sherlock also supports it. It's a powerful way to combine the best aspects of an exact-match search and a Boolean search. Be warned: you won't often get a precise answer to your question, but you will frequently find links that provide the information you need within a click or two.

Get Help One of the best ways to search the Web efficiently is to learn the rules of the search engine you use most. All major search-engine sites provide a help area with some instructions. Most abide by a general set of rules for phrase searches and Boolean searches, but a few search sites also offer special features that are described only in this area.

.wsj.com) a try. It costs $59 annually for those who don't subscribe to the print version of the *Wall Street Journal* and $29 for those who do.

BEST WEATHER SITE

AccuWeather (www.accuweather.com)
Type in a city name or zip code and view the current temperature and forecast. You'll also find weather maps and updated weather satellite photos.

ENTERTAINMENT

Whether you're enamored of a certain movie star or fervently following a football team, you'll find that the Web is an excellent source of information on all forms of diversion. Listings, news, scores, and statistics abound for couch potatoes.

BEST SOURCE OF TV LISTINGS

Gist TV Listings (www.gist.com)
Type in your zip code and the Gist site will give you a detailed listing of all that's on cable, satellite, or broadcast television in your area.

More than simply providing listings, Gist allows registered users to create a customized TV grid with schedules for their favorite channels, search for movies and other shows by keyword, and receive show reminders by e-mail. The interface is slick and easy to use, and the information is complete.

BEST MOVIE SITE
Internet Movie Database (http://us.imdb.com)
Movies, actors, directors, and screenwriters are cleverly cross-referenced in this true compendium of movie information. The site's listings are surprisingly complete, including all of the films made by most major film personalities and even a list of alternative and foreign film titles. Best of all, Internet Movie Database is interactive, too, allowing viewers to add their opinions in the form of ratings.

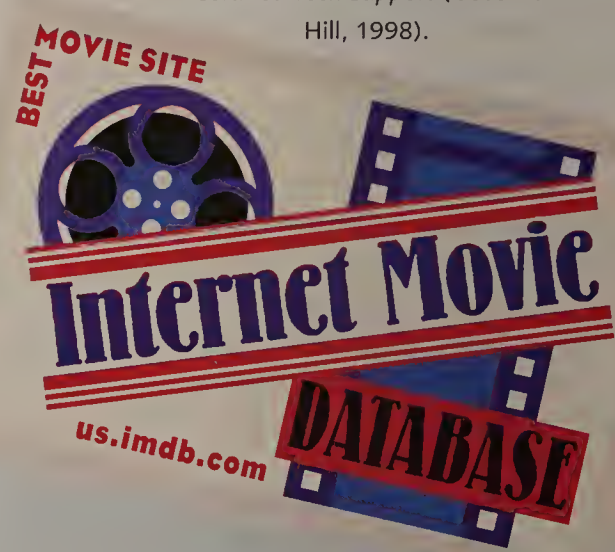
If you're trying to find out what's playing in theaters near you, we recommend a trip to MovieLink (www.movielink.com). It's just like phoning 777-FILM (a service available in most cities; you tell the computer your zip code and it tells you what movies are playing in your area) but without the Moviefone man's . . . distinctive voice.

BEST SPORTS SITE
CNN/SI (www.cnnsi.com)
Sports Illustrated's in-depth analysis combines with CNN's timely coverage to create a thorough, up-to-date site. Organized by sport, with links to standings, features, statistics, and team rosters, CNN/SI is easy to navigate and chock-full of info on all major pro and college sports, *including* women's sports.

BEST WORKDAY DIVERSION
The Onion (www.theonion.com)
Arranged like a typical online newspaper, The Onion takes satirical pokes at pop culture, politicians, and the latest news.

THE LAST WORD
Like tour guides trying to show off Europe in a week, we've been able to hit only a few of the Web's highlights. Much more awaits you, whether you use links you find at these sites or—with the help of a search engine—you take off on your own. Bon voyage! m

SHELLY BRISBIN is a coauthor of *Mac Answers: Certified Tech Support* (Osborne/McGraw-Hill, 1998).



Your Packing List: ESSENTIAL WEB UTILITIES

ARMED WITH A WEB BROWSER AND THE URLS OF SITES you're interested in, you're ready to venture onto the Web . . . almost. Here are some accessories that can make your travels faster. You probably don't need them all, but the right one may make your journey much easier.

Anarchie Pro 3.5 Upload, download, and search with ease, using this FTP (File Transfer Protocol) client and Internet-file search tool. As an FTP tool, Anarchie Pro (♦♦♦♦♦; $35), from Stairways Shareware (www.stairways.com), is superior to any browser. FTP sites and directories open like folders in the Finder, letting you smoothly maneuver through download sites, viewing directories in their own windows or sorting them by name or date. Since Anarchie is a full-featured FTP client, you can upload files to Internet servers in addition to downloading them. It's also an HTTP client (somewhat like a Web browser), so you can use it to get a fast list of links from a Web page. This tool is also among the first to integrate Sherlock's search capabilities and other Mac OS 8.5 conventions into its software.

URL Manager Pro 2.5 Tame large collections of bookmarks and e-mail addresses by using this shareware gem from Alco Blom (www.url-manager.com). URL Manager (♦♦♦♦; $25) adds two menus to your browser—one with URL Manager bookmarks and another with commands and help. With just a click or a keystroke, you can access previously stored bookmarks and add new bookmarks to your URL Manager collection (some other bookmark managers require you to import bookmarks).

RealPlayer 5.0 It's no longer necessary to load up on third-party browser plug-ins just to make sure you can watch the QuickTime video of Bill Gates getting cream-pied or hear the latest sound clips on your favorite band's Web site. These days, browsers and the tools that come with them can handle almost all common file types. If you use Internet Explorer, however, RealPlayer 5.0 (♦♦♦½; free), from Real Networks (206/674-2700, www.real.com), is an exception worth downloading. (It's bundled with the current version of Netscape Communicator.) It not only plays streaming audio but can also play the streaming video found at many sites, including those run by network and cable TV. At press time, Real Networks released a public beta of RealPlayer G2—a version that has been available to Windows users for awhile. No ship date was announced.

Surf Express Deluxe 1.5 This tool's purpose is to make you wait less for the Web pages you go to most. Surf Express Deluxe (♦♦♦♦; $45), from Connectix (650/571-5100, www.connectix.com), uses cache-management techniques to optimize the browsing of sites you visit often, making the sites load significantly faster (see *Reviews*, March 1999). You can also search cached files with Surf Express to find a URL and the date you last visited it. If you haven't upgraded to Mac OS 8.5, you'll also be interested in the Supersonic Search application included in this package. It's not Sherlock, but it does let you pick from a menu of search options—stock quotes, news, Web sites, and newsgroups—and enter a query. Supersonic Search displays its results in your browser, opening it if necessary.

Web Buddy 2.0 Several tools—including Internet Explorer—allow you to browse Web sites offline. For those who use Netscape Communicator, however, Web Buddy 2.0 (♦♦♦½; $40), from DataViz (203/268-0030, www.dataviz.com), has the best browser integration of the add-on tools (see *Reviews*, in this issue). Web Buddy adds an extra tool bar to your browser that lets you download a single page or a complete Web site in just a few clicks. You can also schedule updates to download at intervals you choose.

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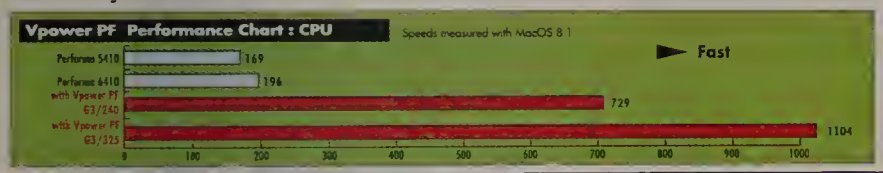

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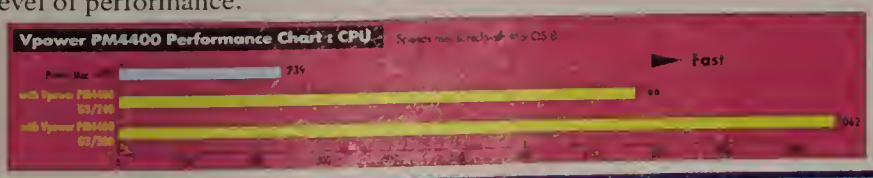

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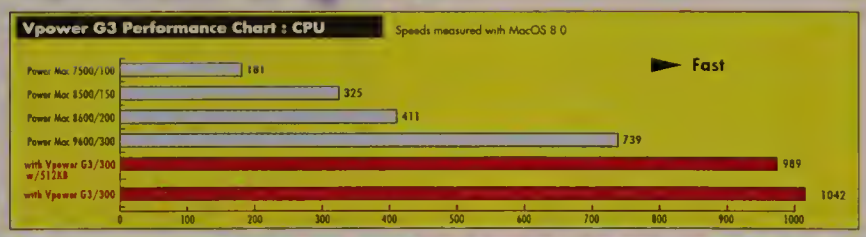

Product	Compatible Machine	CPU	Cache	Price
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Vpower G3/233	Power Mac 7300,7350,7500,7600,8500,8550,8600,9500 UMAX S900,S910	G3/233MHz	512KB/117MHz	$ 389
[illegible]	PowerBook 1400	[illegible]	[illegible]	[illegible]
Vpower PM 4400 G3/240	Power Mac 4400 Motorola Star Max 3000, 4000	G3/240MHz	512KB/120MHz	$ 499
Vpower PM 4400 G3/300	Power Mac 4400 Motorola Star Max 3000, 4000	G3/300MHz	1MB/150MHz	$ 899
Vpower PF G3/240	Power Macintosh/Performa 54xx, 55xx, 64xx, 65xx, 20th Anniversary Super Mac C500	G3/240MHz	512KB/120MHz	$ 499

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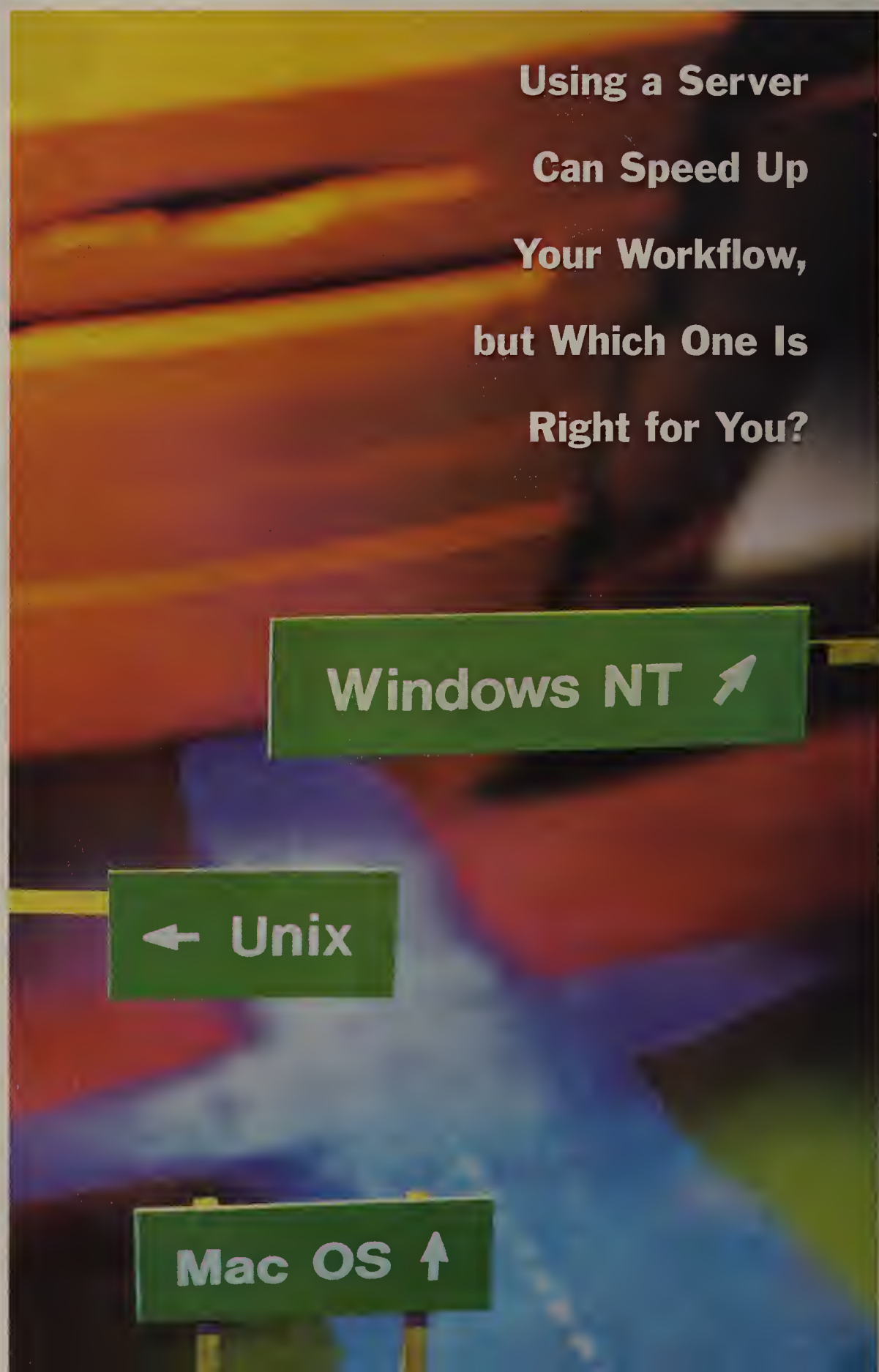
Put Your Files in the Fast Lane

BY BRUCE FRASER

Since the original Macintosh arrived with its built-in networking, Mac users have been using their Macs together to get work done. Today, the arrival of high-speed networking and the pervasiveness of the Internet have made using a network part of most people's everyday lives—and part of the procedures and workflow of nearly every business.

If your workgroup isn't networked, it's time to consider getting connected. Even if you *are* connected, your workflow may be stuck in gridlock—a situation that might be remedied with the addition of a speedy server on which to store all your files and spool your print jobs. In this, the first in a series of



Using a Server Can Speed Up Your Workflow, but Which One Is Right for You?

Macworld articles to focus on working effectively in a networked world, Macworld Lab tested Mac OS–, Windows NT–, and even Unix-based servers to find which operating system provides the best speed and services.

AppleShare IP 6.1 Nothing beats Apple's own server package when it comes to general file serving.

Are You Being Served?

Considering all the pros and cons of installing a server in your workplace can be enough to drive you crazy. Flashy consultants will tell you that while you may be comfortable with the Mac OS, the Mac's not really a suitable server. You'll hear recommendations that you should jump to Windows NT—or even Unix (see the sidebar "Publishing Powerhouses").

While Windows NT certainly has its strengths, we found that the current Mac OS is a powerful serving platform that may be able to fulfill all your needs without forcing you to brave the wilds of a foreign operating system. And the upcoming Mac OS X promises even more speed benefits.

To Buy or Not to Buy? Which server is best for you—if you need one at all—depends on what you're looking to gain from a server.

With all the buzz surrounding servers, the general notion is that if you *don't* have a server, you can't possibly have an efficient workflow. That isn't necessarily true—your need for a server really depends on how your workgroup is organized. For example, if most tasks are handled from start to finish by one person, a server may not be much help. But for the vast majority of us, most projects are a collaborative effort and usually involve a good deal of file transmission across a network.

In most cases, it's true that incorporating a server into your workplace will help you transfer data more quickly. A server definitely helps if your machine lags several times a day because someone else on the network is reading a file on, or writing a large file to, your hard drive. Likewise, if your printer gets bogged down processing one large job after another, a server can help there, too. However, if you're still hesitant about adding a server to your family of Macs, you might want to consider a simple file-sharing solution.

The Old-Fashioned Way Using the Mac OS's built-in file sharing works for file transfers, but this approach has two major disadvantages. For starters, if someone else on the network accesses your hard drive while you're working, you'll see a dramatic performance hit. You can address this problem by dedicating a Mac with no server software (usually an older, slower Mac) as a central repository for files. This way, individual workstations on the network don't get clobbered.

However, even if you set up an old Mac in the corner for shared files, a second disadvantage remains. File sharing slows down significantly as network traffic increases. If you try to copy a file while someone else on the network is printing, for example, file copying slows down and the print job takes longer than expected. The frequency of these delays depends on how often people are downloading files, transferring data, and ordering print commands—and your tolerance for these delays will depend on how often they occur and whether they interfere with your daily needs. The only solution to this second dilemma is to add a real server.

Network Upgrade Don't forget that adding a server won't change the top speed at which data can travel on your network. If you're still running slow Ethernet, you should upgrade to 100BaseT before taking another step. The added muscle of any new server you buy will be wasted if your network doesn't offer the extra bandwidth for moving data. While 100BaseT isn't quite ten times as fast as 10BaseT Ethernet, you'll almost certainly achieve at least an 800 percent speed gain by increasing your bandwidth.

Break the Speed Limit

Be forewarned: a server will do more than speed up your network; it will also change the way you work. Depending on the choices you make, you may find new challenges facing you, from the small and annoying to the big and pricey. For example, you may need to change your file-naming conventions to accommodate a new platform and you may also need to learn the ins and outs of a new operating system. Regardless of your server-platform choice, you'll need to evaluate your tech-support needs and plan backup strategies in case the server crashes.

Taking all this into account, if you have a Mac-only office, there's a distinct

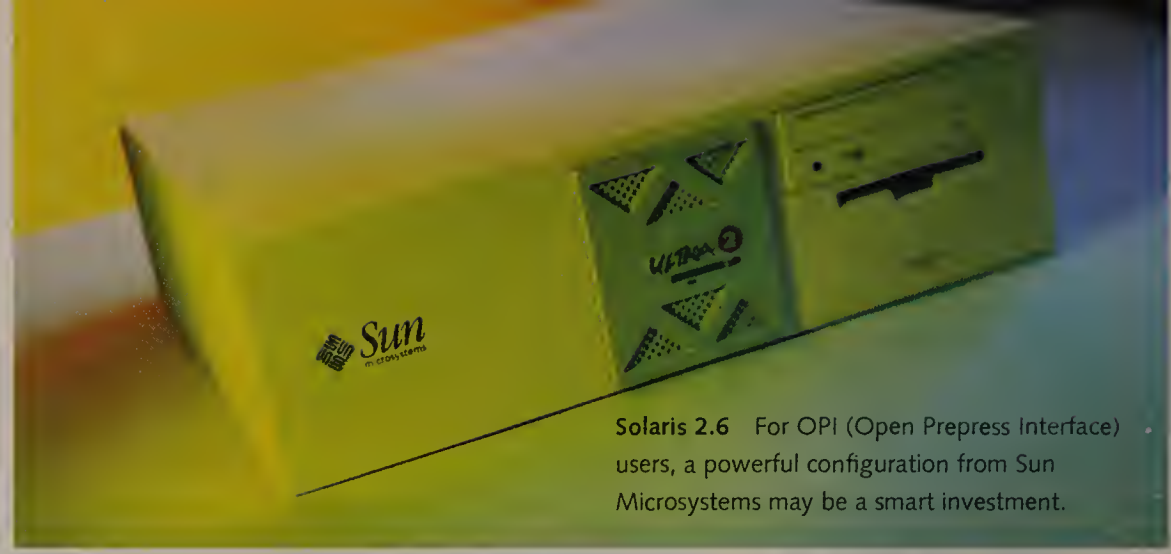
Windows NT For stellar print serving, consider a PC running Windows NT 4.0.

PHOTOGRAPHY BY SCOTT PETERSON

advantage to sticking with the Mac OS as your server platform. Using a Mac server will be less disruptive to your workflow than bringing in a new platform: file naming won't be an issue, and maintenance will be simpler since you probably have experience with in-house troubleshooting.

Windows NT offers serious power for relatively few bucks, but you'll typically have to do everything yourself—unless you buy a more pricey, preconfigured system from a manufacturer, such as Intergraph (256/730-5441, www.intergraph.com), that delivers NT solutions for Mac environments.

With different OS selections to choose from, it's important to consider all factors before making a decision. Although speed should not be the only consideration, it is the initial reason you'd consider adding a server to your network. Unless a server would accelerate your work, there's little reason for making such an investment.



Solaris 2.6 For OPI (Open Prepress Interface) users, a powerful configuration from Sun Microsystems may be a smart investment.

Clocking the Speed

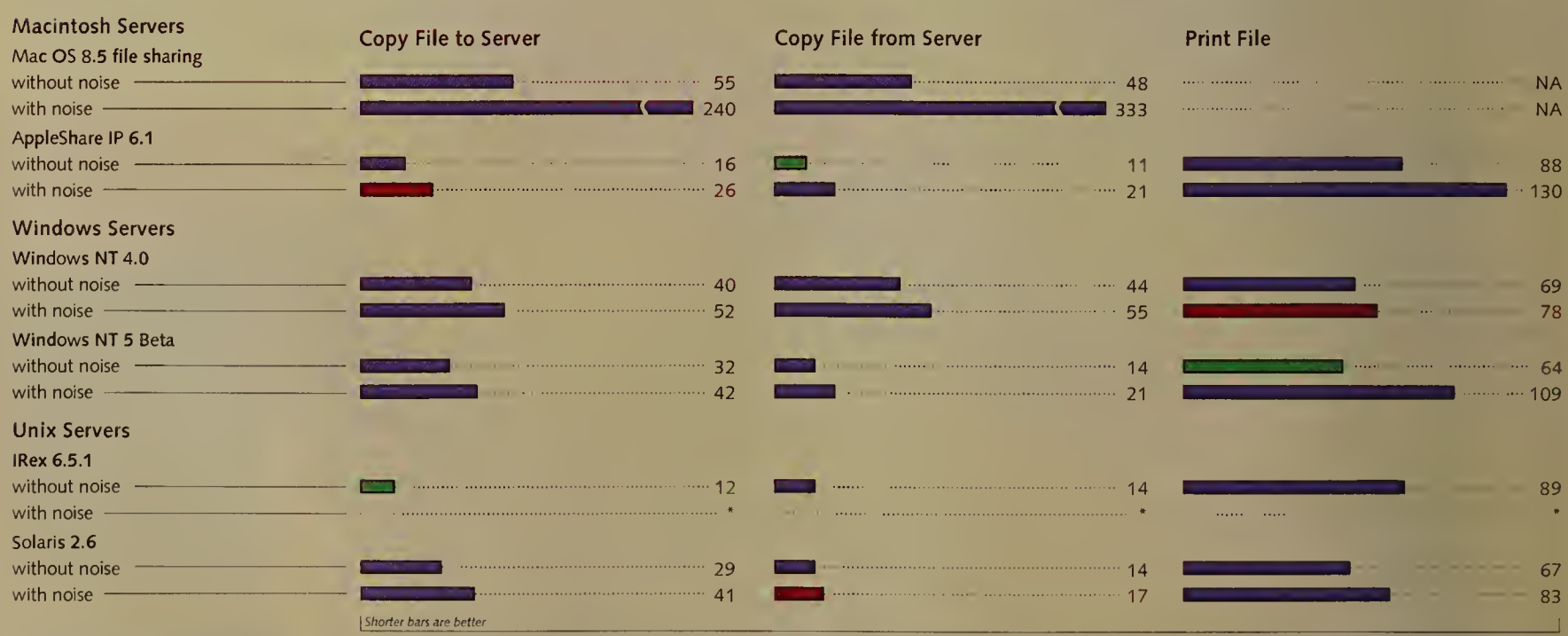
There are several factors that influence a server's speed. The server's operating system must be compatible with the Mac clients, and the server must be powerful enough to handle the simultaneous commands of several workstations. To help you find the best server platform for your small office, Macworld Lab torture-tested servers running both the Mac OS and Windows. We tested the Apple server-software choice (AppleShare IP 6.1) and

Macworld LAB TEST

Speedy Servers

For general file serving, AppleShare IP 6.1 running on a Power Macintosh G3/333 is hard to beat. Mac OS 8.5 file sharing, using the same hardware, has substantial difficulty when subjected to a heavy load of network traffic. IRex 6.5.1, running on a Silicon Graphics server, beat AppleShare at copying files to the server. The Windows 2000 Server beta looks promising. For print serving, Windows NT 4.0 and Solaris 2.6 are good choices.

Best results with network noise in red. Best results over an idle network in green. All scores are in seconds.



*NA = not applicable. *NetBench 5.01 is incompatible with IRex 6.5.1 and Macintosh clients.*

Behind Our Tests

To test file sharing and AppleShare IP 6.1, we used an Apple Power Macintosh G3/333 with a 333MHz PowerPC, 128MB of RAM, a two-drive RAID Level 0 array, and a default installation of Mac OS 8.5. We tested both Windows NT 4.0 with Service Pack 3 and the Windows 2000 Server beta version on a Dell Dimension XPS D333 with a 333MHz Pentium II with MMX, 128MB of RAM, and a two-drive RAID Level 0 array. Our Solaris 2.6 server was a Sun Microsystems Ultra2 Model 2200 Creator 3D with dual UltraSparc 200MHz CPUs, 1GB of RAM, and a single 4GB Wide SCSI drive (with Macintosh clients connected via Xinet's K-AShare and K-Spool). We tested IRex 6.5.1 on a Silicon Graphics Origin 200 with a 225MHz R10000 CPU, 128MB of RAM, and a two-drive RAID Level 0 array (with the Macintosh clients connected via Helios EtherShare 2.5.1).

Using a Power Macintosh G3/300, we copied a 100MB file to and from each server and sent an 80MB QuarkXPress document from each server to a print spool. We ran the tests a second time, using Ziff-Davis's NetBench 5.01, creating network traffic with four Power Mac 7300/200's. The computers were on a Fast Ethernet network, connected to a Farallon Fast Starlet 100TX/8.—**Macworld Lab testing supervised by Kristina De Nike**

Publishing Powerhouses

For high-end publishing shops, a mere file or print server may not do the trick. After all, few things can bring a network to its knees faster than moving print-resolution CMYK images from station to station. Because of this, a growing number of production environments now use Open Prepress Interface (OPI) servers, often on a Unix-based system. In general Unix servers are much more expensive than other solutions, ranging from $15,000 to more than $30,000, but they are also more robust, scalable, and capable of handling difficult tasks such as OPI.

OPI ASAP

For publishing professionals with time-critical projects, Unix-based OPI servers are a viable solution. These pricier, more powerful solutions speed up production by removing large, high-resolution images from the workflow and substituting low-resolution preview images that are linked to the high-resolution files through PostScript comments. When it's time to print, the high-resolution images—which live on the OPI server—are substituted for the low-resolution previews.

The immediate and obvious benefit of an OPI server is that the high-resolution image files are kept entirely off the network. Designers and layout artists work with the smaller preview images to reduce network traffic and allow the design and layout applications to run faster on the artists' workstations. For example, a typical magazine section-opener image is at least 40MB: the OPI preview image can easily be less than a megabyte (much less if JPEG compression is used), subjecting the network to far less overhead.

A second benefit of OPI is that design and layout can proceed concurrently with color-correction and retouching. Typically, an image is scanned directly to the OPI server at a high enough resolution to allow for any cropping or enlargement. The OPI software then generates the low-resolution preview for use in the design and layout phases. While the designers and layout artists work on the document files, using the preview image, retouchers can work on the color-correction and fine-tuning of the high-resolution image.

OPI-compatible applications, such as QuarkXPress, Adobe PageMaker and Illustrator, and Macromedia FreeHand, record operations such as rotation, cropping, scaling, and positioning as OPI comments in the PostScript stream. Immediately before printing, the OPI server applies the modifications recorded by the OPI comments to the high-resolution image.

In addition, several OPI server-software packages, such as Helios EtherShare OPI and Xinet's FullPress, which generally run on Unix servers, allow you to perform ICC (International Color Consortium) profile-based color management on the server, automatically converting the color for proofers and for final output. Designers don't have to deal with the complexities of color management, and the color conversions are performed on a fast server rather than slowing down the production worker's workstation.

Dueling Servers

To compare the performance of Unix servers to that of the Mac and Windows systems we tested for this story, Macworld Lab performed the same rigorous file-copying and print-spooling trials on two publisher-focused versions of Unix: Sun Microsystems' Solaris 2.6 with Xinet's K-AShare and K-Spool, and Silicon Graphics' IRex 6.5.1 with Helios EtherShare 2.5.1. For comparison purposes, we tested these machines with configurations similar to those of the Mac and Windows computers, but both Sun and Silicon Graphics have much heftier configurations available for customers. The Solaris server was configured slightly differently, with 1GB of RAM and a single 4GB Wide SCSI drive.

IRex 6.5.1 with Helios EtherShare 2.5.1 We ran IRex (Silicon Graphics' version of Unix) on a $17,000 Silicon Graphics Origin 200 powered by a 225MHz R10000 processor and connected our Mac clients with Helios EtherShare 2.5.1. Yes, Unix can be intimidating and quite daunting (see "The Beauty of the Beast," elsewhere in this issue), but it makes it very easy for a system integrator to configure and troubleshoot the server remotely via modem. This technical support is usually included as part of the purchase through companies such as Torque Systems (415/252-5521, www.torque.com).

This Silicon Graphics server-software package proved to be a strong performer, turning in the fastest time for copies to the server of any system we tested and tying for second when it came to copying files from the server over an idle network. Due to compatibility issues between Ziff-Davis's NetBench 5.01 and IRex, we were unable to test this configuration under a network load.

Solaris 2.6 with Xinet's K-AShare 9.03 Most Unix systems offer interfaces that are alien to Mac users and can be somewhat difficult to set up—the $28,000 Solaris server system was no exception. To its credit, however, the Solaris package offers an easier user interface than that of IRex. And with a little help, we were able to set up the server hardware, a Sun Ultra2 Model 2200 Creator 3D, with Xinet's K-AShare version 9.03 for Mac connectivity.

Copies from the server were very fast with this configuration, but copies to the server were surprisingly slow. The likeliest explanation for this is that Solaris 2.6 is fairly old and makes the drive do a lot of directory updating during writes. This problem was probably compounded by the fact that the server hardware supplied by Sun contained only a single drive. Every other server hardware system we tested contained a two-drive RAID Level 0 array.

Given the high price of this server hardware, we found this configuration's speed somewhat disappointing. However, we did achieve similar performance when running a beta version of Xinet's next-generation software—as well as the newer, friendlier Solaris 7 operating system—on a much less expensive Sun Ultra5. Furthermore, Xinet is preparing a Java-based client application that will run on the Mac. Depending on your OPI requirements, you may find Solaris an adequate, if not stellar, performer. And Sun offers some less expensive configurations that are appealing as well.

Do You Need Unix?

Given the price of Unix-based servers, adding equipment like this is probably an option only for the most bandwidth-greedy—and cash-rich—of workgroups. However, if OPI sounds like something you need to implement in your publishing shop, making an investment in a Unix-based server is a wise choice.

The Road Ahead: Future OSs

Adding a publishing server to your network will certainly speed up workflow, but a server you invest in today should also serve you well tomorrow. Aside from the solutions currently available, we uncovered future server operating systems and saw what they have in store for you. Upcoming operating systems promise improved Mac support, but these platform evolutions shouldn't dramatically affect the Macintosh-friendly solutions of today.

Mac OS X Traditionally, Apple has focused its efforts in the server arena on ease of use at the exclusion of speed. However, Apple (408/996-1010, www.apple.com)—a company that at one point sold Unix servers running IBM's AIX—has turned to a home-grown Unix-based operating system for its server-software strategy.

The $99 Mac OS X Server, announced at Macworld Expo in January, is based on Rhapsody, the interim Apple operating system that originated at Steve Jobs's Next. Because Mac OS X Server, like Mac OS X, is based on a Unix core, it provides standard Unix networking support, such as TCP/IP and Network File System (NFS, the Unix equivalent of the Mac's AppleShare) in addition to AppleTalk. That means it can be a server for Unix workstations and Windows clients in addition to Macs using AppleTalk or TCP/IP.

However, the first version of Mac OS X Server appears to be most appropriate either for people in the market for a Web server or for system administrators who want to boot many iMacs off of a server, not for people looking for a file server.

Windows 2000 Server More than a year ago, Microsoft (425/882-8080, www.microsoft.com) hyped its Windows 2000 Server—formerly known as Windows NT 5—as providing great support for Macintosh clients. Due to be released late this year or in early 2000, Microsoft's server solution promises more speed and improved manageability.

The biggest change from Windows NT 4 will be faster performance, as evidenced by Macworld Lab tests of a recent beta version of Windows 2000 Server (see the benchmark, "Speedy Servers"). Under Windows 2000 Server, networked Macs are connected via IP, which provides for faster communication. Macintosh clients will also get native support for Apple Remote Access, so PowerBooks can easily dial in to a Windows 2000 Server–based system.

Network managers will finally be able to manage the Mac file services and clients in a standard Windows 2000 control panel, rather than having to use the separate MacFile control panel.

NetWare Novell's (408/967-8400, www.novell.com) NetWare was the first network operating system to support Mac clients, back in 1988. But Novell ceased its Mac support with the release of NetWare 5. (Earlier versions support Mac clients, but their Mac-connectivity software doesn't work with NetWare 5.)

Novell handed over the development of Mac-connectivity software to Prosoft Engineering (925/426-6100, www.prosofteng.com), which should ship NetWare 5 clients by year's end for both AppleTalk- and TCP/IP-based networks. Beta versions are available for download now.—GALEN GRUMAN

the two flavors of Microsoft Windows NT (version 4.0 with Service Pack 3 and a beta version of Windows 2000 Server—formerly known as NT 5). We also tested simple file sharing under Mac OS 8.5 to gauge the performance leaps of each server.

To determine the relative merits of each server-software package, we attempted to level the hardware playing field, testing the packages on comparably configured machines. The Mac server and the Windows server were each equipped with 128MB of RAM and a two-drive RAID Level 0 array.

Transfer Times

Once we had the servers set up, we tested the transfer times of each server-software package by copying files and folders to and from the respective servers. To simulate the real-world workflow of a medium-size office, we timed each server's performance when copying a single 100MB file. (For the results of the tests, see the benchmark, "Speedy Servers.")

You'll get the maximum performance gain when using a server that is not busy. However, in the real world, it's not likely that only one person at a time will be accessing the server. Therefore, we also tested each system's file-transfer speed when the server was busy working on other commands. Using Ziff-Davis's NetBench 5.01, we created a network load of four clients *continuously* hitting the server—an atypically heavy load for mere file serving.

Since we tested each platform both with and without this network "noise," you can see how each server performed in ideal

Here to Serve You: Operating Systems Compared

Operating System	Company	Phone	Server Software	Server Hardware	Comments
Mac OS 8.5	Apple Computer	408/996-1010	AppleShare IP 6.1	Apple Power Macintosh G3/333 with a 333MHz PowerPC, 128MB of RAM, and a two-drive RAID Level 0 array.	Fastest all-around server in file transfers, but disappointing print-spooling results.
Windows NT 4.0	Microsoft	425/882-8080	No software needed for Macintosh compatibility.	Dell Dimension XPS D333 with a 333MHz Pentium II with MMX, 128MB of RAM, and a two-drive RAID Level 0 array.	Affordable server option that shines in print commands but is sluggish at file copying.
IRex 6.5.1	Silicon Graphics Computer Systems	650/933-1980	Helios EtherShare 2.5.1	Silicon Graphics Origin 200 with a 225MHz R10000 CPU, 128MB of RAM, and a two-drive RAID Level 0 array.	Reasonable solution for multiplatform office, but too pricey for mere file sharing.
Solaris 2.6	Sun Microsystems	800/786-0404	Xinet's K-AShare	Sun Microsystems Ultra2 Model 2200 Creator 3D with dual UltraSparc 200MHz CPUs, 1GB of RAM, and a single 4GB Wide SCSI drive.	Costly server with decent print-spooling times.

IRex 6.5.1 Publishing shops concerned with OPI and quick file transfers will be pleased with the strong performance of a Silicon Graphics server.

settings as well as how each one handled extremely heavy loads of commands.

Mac OS File Sharing Simple file sharing has long been one of the Mac's strong points—it's built into every Mac, it's easy to use, and it's very robust. The most probable scenario for using Mac OS file sharing is to set up an old Macintosh to handle these demands. Macworld Lab tested Mac OS file sharing using an Apple Power Macintosh G3/333 running a default installation of Mac OS 8.5—a setup that is faster and more costly than what you'd typically use for just file sharing.

Although the Power Mac G3/333 is a speedy machine, when it ran the Mac OS's built-in file sharing, it was the slowest of all the servers we tested—even when the network was idle.

With a busy network, though, the main weakness of file sharing became glaringly obvious: copies to the server took well more than four times as long as they did with the next-slowest configuration, Windows NT 4.0, and copies from the server took slightly more than six times as long as they did with Windows NT 4.0, which was again the next-slowest configuration. File sharing may be a reasonable solution for light-duty file serving with a few users and relatively small files, but heavy network traffic—three or four users, for example—will quickly render this approach ineffective. If your network is hitting the wall, it's time to consider adding a real file server.

AppleShare IP 6.1 Loading AppleShare IP 6.1 ($999 for 50 users) onto the same Power Mac G3 used for file sharing resulted in dramatically improved file-copy times. Although the Mac has traditionally not been held in high regard as a server contender, AppleShare IP, the one solution custom-built for Mac clients, is the fastest all-around performer and includes automatic support for PC clients as well. Apple's new Power Mac G3 line of server solutions starts at $3,299.

AppleShare IP 6.1 came in first or second on all of our file-transfer tests. For general file serving in a Mac environment, AppleShare IP 6.1 shines—it's fast, even under a heavy network load, and it's relatively easy to set up. Plus, you'll be glad not to have to worry about introducing a different platform to your shop. (The previous version, AppleShare IP 6.0 [see *Reviews*, February 1999], is incompatible with Mac OS 8.5 despite having shipped only a few weeks before that OS upgrade.)

Windows NT We tested Windows NT 4.0 on a Dell Dimension XPS D333 powered by a 333MHz Pentium II with MMX. The NT 4.0 server was easy to configure; we used default settings and encountered no problems connecting the Mac clients.

As a file server, the NT 4.0 solution proved disappointing, giving slower file-transfer performance than all other configurations we tested—with the exception of Mac OS 8.5 file sharing. In part, this is due to the fact that NT can connect to Mac clients using only the slower AppleTalk protocol. However, such performance lags vanish with Windows 2000 Server, which supports the faster IP protocol. An additional alternative on the Windows platform is Thursby Software Systems' Dave 2.0 (see "Mac Life Preservers," April 1998). This $119 software solution loads on the Mac clients and allows them to connect to a Windows NT 4.0 server via TCP/IP.

When copying to the server with Dave installed, we saw performance gains similar to what we experienced when using the Windows 2000 Server beta (see "Speedy Servers"), but copies from the server were much slower—comparable to what we got when running NT 4.0 without Dave.

Although neither Windows NT package offers the performance boost of AppleShare IP 6.1, you can get a fully configured Wintel server for less than $1,500. However, if you decide to add Windows NT to your office, hold out for Windows 2000 Server. This OS is expected to ship before the end of the year, and early tests show greater speed and better compatibility than what you'll find with Windows NT 4.0.

The Paper Trail

In addition to file sharing, print serving is an important test of a server platform's strength in a Mac-centric environment. And even though it's unlikely for a server to be busy transferring files all the time in a small or medium-size network environment, the server will likely need to continuously feed data to output devices such as imagesetters, platesetters, and proofers. To measure each server's ability in this regard, we focused our analysis on how each performed under a heavy load of network traffic.

For the most part, there isn't one configuration that works ideally as both a file and print server. Our tests demonstrate quite dramatically that for print serving, a PC running Windows NT 4.0 outperforms a Power Mac G3 running Mac OS 8.5 and AppleShare IP 6.1. Since print commands are sent using a different protocol than IP, servers optimized for IP may offer little advantage as print servers.

AppleShare, the champ on file serving, was disappointing as a print server. The more affordable Windows NT 4.0, a distinctly lackluster file server, excelled at our printing tests on a busy network.

The Last Word

For general file serving in a Mac environment, don't let anyone force you to abandon the Mac OS. AppleShare IP 6.1 is hard to beat—it's fast, easy to configure, and does not require the use of a foreign operating system. For print serving, Windows NT 4.0 was the true speed champ. Not only is it the fastest in the lot, but the necessary hardware is also affordable.

If you decide to go the server route, consider more than just sheer speed so you won't be blindsided by costly technical support or platform integration. And regardless of your platform selection, remember that integrating a server into your office will undoubtedly put your files in the fast lane. m

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Contributing Editor BRUCE FRASER is a coauthor of *Real World Photoshop 5* (Peachpit Press, 1999).

MAC OS X AND LINUX ARE BRINGING *unix* OUT OF THE DARK AND ONTO YOUR MAC

Most Mac users break the world of computer operating systems down into two camps: Us (the Mac OS) versus Them (Windows). But that black-and-white view of the computer world ignores an operating system you probably rely on every day without knowing it—and one with the promise to turn your Mac into a far more powerful computer than you ever imagined possible.

We're talking about Unix, the operating system that keeps the Internet up and running, poses one of the greatest threats to Microsoft's monopoly, and is poised to sweep into Mac users' lives with the introduction of Mac OS X, expected later this year.

Unix has a reputation for being a scary, complicated system that's the polar opposite of the friendly, easy-to-use Mac OS. And that reputation is somewhat deserved—but that's not the whole story. New versions of Unix that run on Mac hardware are giving slow Power

The Beauty

by Stephan Somogyi

ILLUSTRATIONS BY CHRIS CHING

of the Beast

Macs new life by turning them into screaming-fast Internet servers. Apple is also hard at work on the upcoming Mac OS X, making the power of Unix more friendly and appealing to the average Mac user. That's why, even if you've made the solemn vow never to type on a command line, knowing about Unix will help bring the future of the Mac (and perhaps the entire computer industry) into focus for you.

Uncovering Unix

The first thing to understand about Unix is that it's not one single product from one developer, like the Mac OS or Windows. It's more of a *specification* for an operating system—in addition to the official Unix versions there are countless clones and variants, including one of the most popular ones around, Linux (www.linux.org). Linux is a free version that is developed by a group of volunteer programmers on the Internet and has taken the software world by storm—mostly because it's free, it's stable, it isn't controlled by any single monolithic corporation, and it doesn't come from Microsoft. Software giant Corel is even working on a Linux version of its WordPerfect Office suite in an attempt to break Microsoft's dominance in both the operating-system and office-suite markets.

Unix has been evolving since the early 1970s, long before the dawn of personal computers. Thus, Unix wasn't designed to run on personal computers at all—it was designed to run on expensive servers, with users logging in remotely from terminals or low-powered computers. As time has passed, personal computers have evolved to the point that they now can run Unix themselves, rather than just logging in to a remote Unix server. While most of the personal computers using variations of Unix are still Intel-based PCs, the number of Macs running Unix has begun to grow rapidly.

Unix's Face Unix's basic user interface (called a *shell*) is about as far from the Mac OS as you can get—it's plain text, just like DOS. Unix doesn't have a built-in graphical user interface like the Mac OS or even Windows. When graphical user interfaces first began their proliferation—still during the days when Unix ran only on servers—researchers at MIT developed *X Windows*, a framework that lets developers write Unix programs that have a graphical interface.

But while the Mac has the Finder, there's no common face for Unix. Many different programmers have developed many different graphical user interfaces—typically called *desktop managers*—for Unix. Most of them will be just familiar enough

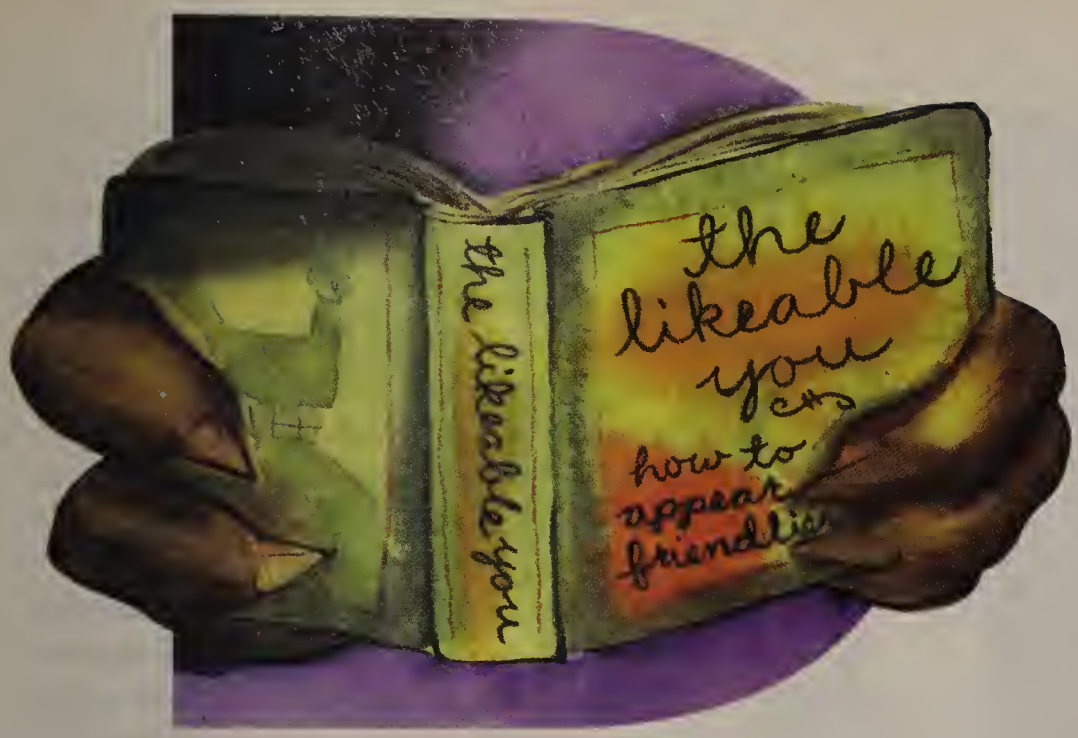
What's in a Name: The Many Colors of Unix

Unix isn't just one operating system—it's a term that's often used to describe all sorts of operating systems. The original Unix began life as a research project at AT&T's Bell Labs in late 1969; Unix's built-in clock considers January 1, 1970, the dawn of time. The University of California, Berkeley was also working on a version of Unix, based on AT&T's project, that ultimately saw the light of day in 1975. Berkeley's Unix was known as BSD, short for Berkeley System (or Software or Standard, depending on who you ask) Distribution, and was intended for higher-education, noncommercial use. Over time, AT&T released several revisions of its Unix; the one that really made its mark was called System V.

The Unix name has been a source of legal contention, and its trademark has changed hands several times during various corporate purchases and mergers. Because of licensing restrictions, intellectual-property rights, and also technical preferences, several Unix clones have been developed from scratch over the years, specifically to allow them to evolve independently of the large legal entities that owned the rights to the Unix name and the operating system.

Minix was one such clone, as is Linux, which began development in 1991 under the guidance of then-student Linus Torvalds. In the years since, Linux has remained *open-source software*—all of its source code is freely accessible to users and modifiable by anyone who would choose to do so.

There are also a number of open-source BSD derivatives out there—FreeBSD, NetBSD, and OpenBSD to name but a few. While they haven't had the public acclaim that Linux has enjoyed, each has its own fans; for example, Yahoo uses FreeBSD on all its servers. Since the different BSDs and Linux are open-source systems, there is occasional cross-pollination between the two camps. MkLinux, for example, uses various bits of device-driver code from NetBSD. Apple's Mac OS X Server is even based in part on FreeBSD.—STEPHAN SOMOGYI AND GEOFF DUNCAN



that users can perform basic work, but they're a far cry from the intuitive interface that Mac users have come to expect—partially because there are no cohesive user-interface guidelines for Unix as there are for the Mac.

Unix's Power So if Unix is complicated and scary, why would any Mac users care to run it on their Macs? The answers are *speed* and *stability*. Underneath its complex facade, Unix is a stable, fast operating system that is especially appropriate for use as an Internet server.

In fact, Power Macs that start to feel too slow for the Mac OS can gain new life as Unix servers, hosting Web sites or routing a workgroup's e-mail. Although the Mac OS of today is a precariously balanced construction of code, Unix is designed to do its business as quickly as possible, leaving your computer's processor mostly free to do actual work.

Unix is far more efficient than the Mac OS in the way it manages processing horsepower and memory. Unix uses *preemptive multitasking*, a system of controlling applications so that no single program can hog all the processor power—but programs that need a lot of power can take priority over ones that are less vital. If you've ever noticed how sluggish your Macintosh can run when some other program is working in the background, you've seen the result of the Mac OS's less efficient *cooperative* multitasking.

Unix also offers *memory protection*, a scheme that essentially provides an impenetrable wall around every running program. That way, if one program goes nuts, it not only can't hurt any other program but it can also be shut off without harming your system or forcing you to reboot. If you've ever had to reboot your entire system because of a misbehaving application—and this happens to every single Mac user—you can see what an improvement memory protection is.

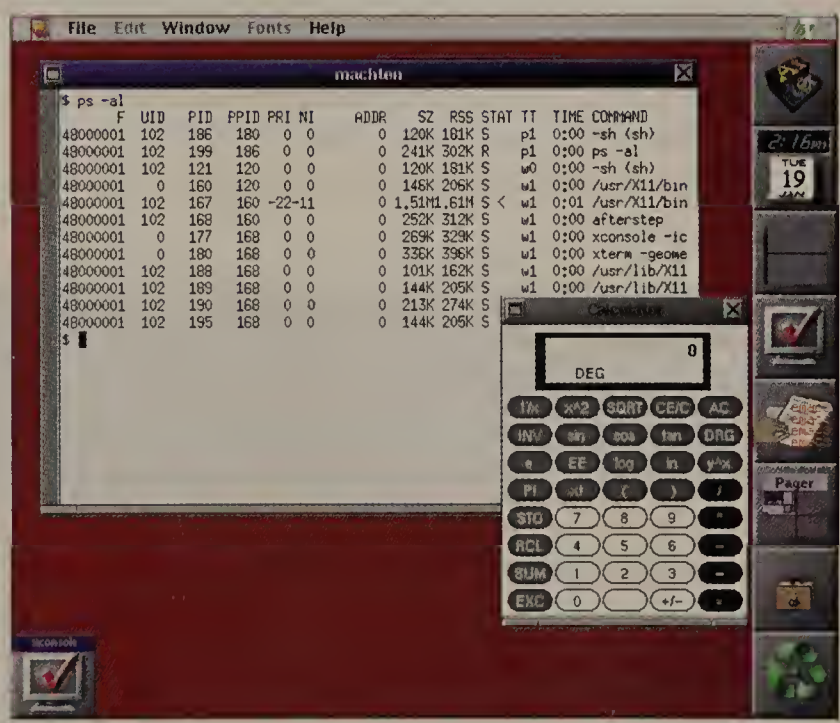
As a result, even the slowest Power Mac can be shockingly fast and stable when it's running Linux. And that means organizations can keep putting those computers to use long after they would've otherwise been written off as useless.

The Mac OS Meets Unix

Sure, Unix's strengths sound great—but its weaknesses (for example, its lack of a consistent, graphical user interface; its complexity; and certain security issues) loom even larger. Thankfully, Apple has decided to merge the best of Unix and the Mac OS, and the result is Mac OS X. Apple has made it clear that the version of Mac OS X intended for regular Mac users will provide the same friendly Mac interface we use every day—perhaps with some new innovations. But hidden away beneath the surface will be Unix, providing the speed and stability that Unix built its reputation on.

The Promise of OS X If Apple does its job right, using Mac OS X will feel like using the Mac OS and not some Mac-Unix hybrid. The same can't be said of Mac OS X Server, Apple's new $999 server operating system that's an intermediate step between the Unix-rooted NextStep environment and the Mac OS.

Apple is billing Mac OS X Server as a powerful software package for Web serving, and it's hard to argue against this: because of its Unix underpinnings, Mac OS X Server can run Apache, the free Web server software that's the most popular Web server package on the Net. What Mac OS X Server adds to Apache is a user interface—Apple has written Mac-style control panels and assistants to make setting up Apache easier than it would be on, say, a standard Linux system. (Whether it'll be as fast as Apache on Unix is still unknown—at press time, Apple wouldn't allow *Macworld* to test a prerelease version of OS X Server.) This isn't Apple's first time working with Unix—the company used to offer its own variant of Unix, A/UX.



Mach Speed Tenon Intersystems' Power MachTen 4.1.1 lets you run Unix as an application within the Mac OS. Note the Windows-style interface and the lurking command line beneath that friendly Mac menu bar.

Running Unix Today

Whether you want to be prepared to be a Mac OS X power user on the day the new OS is released or you just want to see how fast that old Power Mac of yours can be as an office e-mail, Web, or file server, you can get Unix experience today by running a version of it on your Power Mac.

There are two different ways to run Unix on Macs: either you can run Unix inside the normal Mac OS or you can completely replace the Mac OS with Unix.

Unix Inside The gentlest way to introduce Unix into a Mac environment is to use the $249 Power MachTen 4.1.1, from Tenon Intersystems (www.tenon.com). It's a full-blown version of BSD 4.4 Unix, with X Windows, networking capability, development tools, and everything else Unix has, but it runs as a Mac application. This means that you can switch from the Mac universe to Unix with the click of a mouse. The downside of this solution is that MachTen is as vulnerable as any other Mac OS app to the misbehavior of other software.

Despite these limitations, don't be fooled into thinking that MachTen is a Unix emulator, in the same way that Connectix's Virtual PC is a Windows emulator. The Unix software inside MachTen executes instructions native to the Mac's PowerPC chip, meaning that MachTen and its apps run at native speeds. If you're careful not to run too much other stuff on your Mac, using MachTen is a particularly convenient option because of the ease with which you can switch back and forth.

Linux Takeover Although it's popular to run Linux on Intel-based PCs as an alternative to Windows, there are also two popular versions of Linux that run on Power Macs: MkLinux and LinuxPPC. (Another variant, Yellow Dog Linux [www.yellowdoglinux.com], is on the horizon.)

Unlike Power MachTen, both MkLinux and LinuxPPC need to take over your entire Mac when they're running. This means that you have to restart your computer whenever you want to switch between Linux and the Mac OS. You'll also have to dedicate at least 500MB of hard-disk space to a Linux installation. Fortunately, however, MkLinux and LinuxPPC are similar enough that despite the differences between the two, both can run the same apps.

MkLinux First introduced in 1995, MkLinux is the oldest Linux for the Mac, and its development was originally funded by Apple. It's completely free—you can download it from ftp://ftp.mklinux.apple.com. For those who don't want to spend time downloading its multihundred-megabyte bulk, you can

Unix on Power Mac: Where to Get It

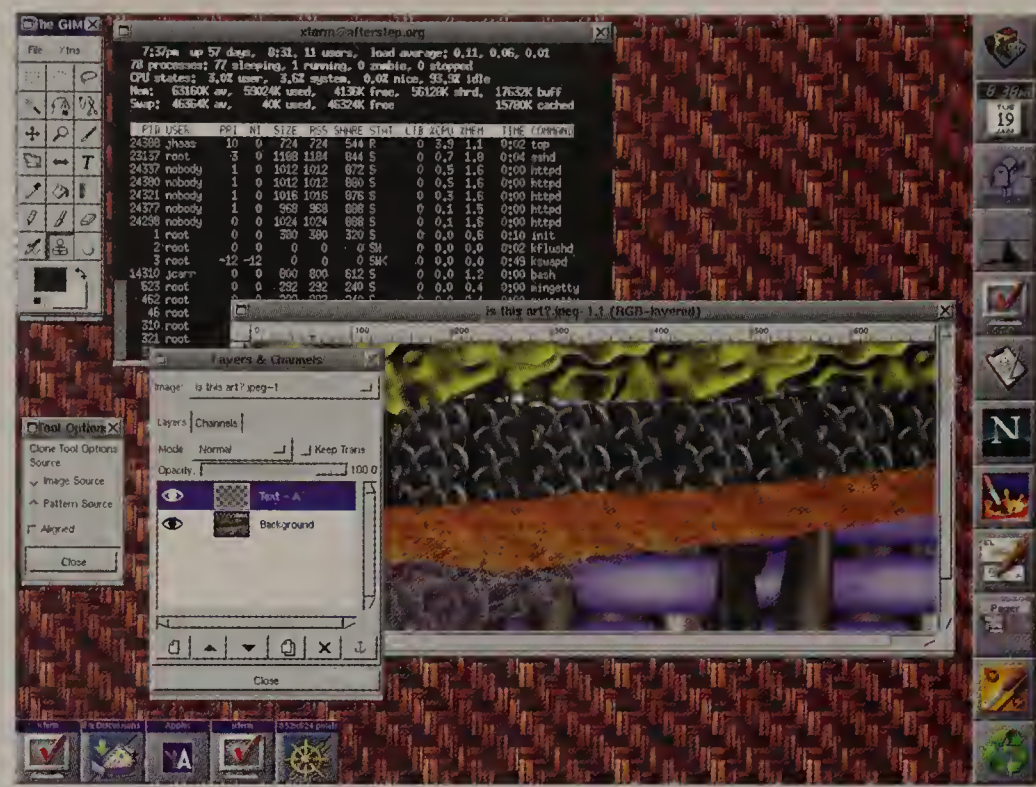
Company	Product	Price	Phone	Comments
LinuxPPC	LinuxPPC Release 4	$32*	414/427-8555	Fast and stable; doesn't work on NuBus Power Macs.
Prime Time Freeware	MkLinux DR3	$20**	408/433-9662	Compatible with old Power Macs; slightly slower than LinuxPPC.
Tenon Intersystems	Power MachTen 4.1.1	$249	805/963-6983	Runs within the Mac OS; susceptible to Mac OS crashes.

** Also available as a free download from ftp://ftp.linuxppc.org. ** Also available as a free download from ftp://ftp.mklinux.apple.com; two-CD set plus book, $50.*

purchase a copy for $50 from Prime Time Freeware (www.ptf.com). This gets you two CDs plus an informative book about MkLinux; if you want just the software on CD, it's $20. That tome has most of the documentation that you'd otherwise spend a lot of time hunting around for on the Net. At that price, it's a steal.

MkLinux's main advantage is hardware compatibility: it runs on just about every Power Mac out there, including the original 6100, 7100, and 8100 series. Since those are the PowerPC-based Macs that are most likely to be declared too old to use, they're also the most likely candidates for conversion into Linux-based systems. The result: Macs once slated for the giveaway pile can provide solid performance in their new lives.

LinuxPPC The other Mac-based Linux is LinuxPPC (www.linuxppc.com). Unlike MkLinux, whose evolution has floundered, LinuxPPC is under very active development, bringing continuous improvements in usability, speed, and reliability with it. LinuxPPC can also be downloaded for free, but it's much more convenient to purchase the $32 set of two CDs that contains all the software and source code.



Linux Now This sample X Windows interface from LinuxPPC shows an image-editing program, a program-launching tile utility, and a window containing a Unix command-line session. Unlike Mac apps, however, X Windows apps can have widely varying interfaces.

LinuxPPC is leaner and meaner than MkLinux. Its developers have taken advantage of the more open systems that Apple designed and built in the days of Mac clones. The LinuxPPC team has created a Linux that is even more streamlined—and therefore faster—than MkLinux.

Unfortunately, LinuxPPC runs only on Power Macs that have a PCI bus. The good news is that it does work on all PowerPC-based systems *other* than the 6100/7100/8100 family; its Performa siblings; or the PowerBook 1400, 2400, and 5300 models. (The definitive list of supported hardware is at http://linuxppc.org/hardware/.) It's a pity that the first Power Mac generation is left out, but unless Apple provides the LinuxPPC team with the necessary documentation, MkLinux will remain the only option for those Macs.

Perhaps the most important thing about LinuxPPC is its attention to making Linux as painless to install as possible. The latest version of LinuxPPC, release 5.0, will include a brand-new graphical installer that will help you set up Linux on your Power Mac fairly easily. You can even set Linux to boot directly into an X Windows graphical user interface rather than a scary command-line interface, if you so desire.

However, all these improvements to the process don't mean that running LinuxPPC is as easy as running a Mac—Linux is still something for people with a techy mentality. And much more than is the case with computers running the Mac OS, Unix-based systems are vulnerable to attack if you're not careful. Unix will often load a number of server applications invisibly and by default. If you're planning on running a Linux server that's accessible to the whole Internet, you must learn a bit more about Unix system administration than if you are just setting up a local workgroup server.

And while there are only a few general-use Linux applications out there, the numbers are growing. You can run Netscape Communicator (www.netscape.com) on LinuxPPC, and Applix (www.applix.com) will soon offer a version of its Applixware suite of business apps for LinuxPPC. One by one, the barriers to getting started with Unix are disappearing. Hopefully, by the release of Mac OS X they will have faded away completely.

The Last Word

Unix definitely isn't something to be afraid of; instead, it's something to be curious about. Its performance tweaks make it a faster, more reliable operating system than the Mac OS. Until Mac OS X arrives, you'll have to forfeit some ease of use if you want to give Unix a try. Whether you're just interested in experimenting with the new Linux operating system that everyone's talking about or you're actively preparing for Mac OS X, you have lots of options today for running Unix on your current Power Macintosh.

And although Apple has committed to keeping the "classic" Mac OS alive well into the next millennium, the long-term future of the Mac OS is based on Unix technology. If Apple's engineers do their job right, regular users won't have to know about Unix buzzwords or see its command-line countenance in order to reap the rewards of its power and stability. m

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Contributing Editor STEPHAN SOMOGYI understands Unix and many of its variations but still prefers the Mac.

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Secrets

URL Magic Tricks

SOME SLEIGHT OF HAND TO ORGANIZE ALL THOSE INTERNET ADDRESSES

by Joseph Schorr

Literally thousands of new Web sites pop up on the Internet every day. Unfortunately, at least half of them seem to end up getting bookmarked on my computer. The result, of course, is a mess: huge lists of bookmarks; unwieldy, disorganized browser menus; and dozens of stray URLs in documents randomly scattered all over my system.

With Web and e-mail addresses coming at you from every direction, it's good to know that there are plenty of powerful URL-management shortcuts built right into the Mac OS. If you know the right tricks, you can wrangle, redirect, and reorganize those URLs with a few simple mouse-clicks.

JEFFREY PELO

Detect and Connect

The best way to extract URLs from documents of any kind is by using Apple Data Detectors (ADD) 1.0.2, an incredible free utility from Apple that helps you find, save, and connect to Internet addresses located in documents anywhere on your system. If you're not already using ADD, you should be. To download it, go to http://asu.info.apple.com and search for Apple Data Detectors. (You can use ADD with System 7.6 or later.)

With ADD installed, you can simply control-click on a selection of text in a document to create a contextual pop-up menu that lists the URLs in that selection. The pop-up menu also lists a number of options for launching or saving the URLs (see "Click to Connect"). The detector can recognize e-mail addresses, Web sites, newsgroup names, and FTP site addresses. You can, for example, use ADD on a word processing document to find a Web page's address, add the address to the list of bookmarks in Netscape Navigator, and then launch your browser and open the page—all from one pop-up menu right in your word processor.

One note about ADD: the pop-up menus provide more options than you probably need; the View In Cyberdog option is one you probably won't use, for example. So after installing ADD, make it a point to visit the Apple Data Detectors control panel, where you can turn off commands you don't plan to use.

Clip Those URLs

Even without ADD, Mac OS 8.5 has become quite smart about sniffing out URLs and helping you organize them. For example, you can now create two new kinds of text clippings: Web-page locations and e-mail addresses. Simply select a URL (such as www.macworld

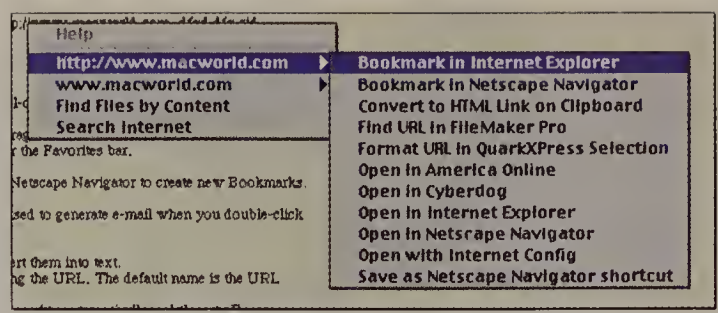
continues

.com) or an e-mail address (such as joe@macworld.com) in the text of any drag-and-drop–aware application, such as Microsoft Word or AppleWorks, and then drag the selection to the desktop (or anywhere else in the Finder). The resulting text clipping becomes a document you can double-click on to launch your default Web browser or e-mail program, which then connects to the designated Web page or creates a preaddressed piece of e-mail for you.

Once you've created Web-page–location or e-mail–address clippings, there are a number of different ways you can use them.

• Drag a Web-page–location clipping directly into a browser window to connect to that Web site immediately. If you drag the clipping into Microsoft Internet Explorer's Address bar (instead of into the window itself), the URL appears in the Address bar, although you won't actually connect to the site until you press return.

• If you want to be able to access a clipping from the Favorites submenu in the Apple menu, control-click on a clipping and choose Add To Favorites from the contextual pop-up menu. This places a copy of the clipping in your system's Favorites folder.



Click to Connect With Apple Data Detectors, you don't have to hunt around for the URLs in a document. They pop right out in a contextual menu packed with options.

• You can change the name of a clipping without altering its contents, even though by default these clippings have the name of the URL they contain.

• You can drag the clippings into any drag-and-drop–aware application to insert them as text.

• Drag clippings into Internet Explorer 4's Favorites folder to automatically add them to Explorer's Favorites list. Even cooler, drag them straight onto the Favorites bar and they appear right on the bar. This little trick doesn't work with Netscape Navigator, by the way.

• Double-clicking on a clipping launches your default Web browser or e-mail program. You can change these defaults by opening the Internet control panel and choosing new default applications in the E-mail and Web panes.

Instant Bookmarks

If you generally keep your Web browser running, here's another way you can create shortcuts to your favorite Web sites from URLs you may come across in e-mail and other documents: You can treat a URL within text just as you do a Web-page clipping file. Select the URL, and then drag it directly into the Favorites folder in Internet Explorer—bypassing the Finder completely. The URL instantly becomes available in Explorer's Favorites list. Or, you can drag the selection right onto Explorer's Favorites bar to install a shortcut button right on the bar itself.

You can do essentially the same thing in Netscape Navigator by dragging a selected URL into Navigator's Bookmarks folder.

Of course, even with these techniques, you still have to sort through your collected URLs, organize them into manageable lists, and periodically, weed out the waste. For that job, alas, no one-click tool exists. **m**

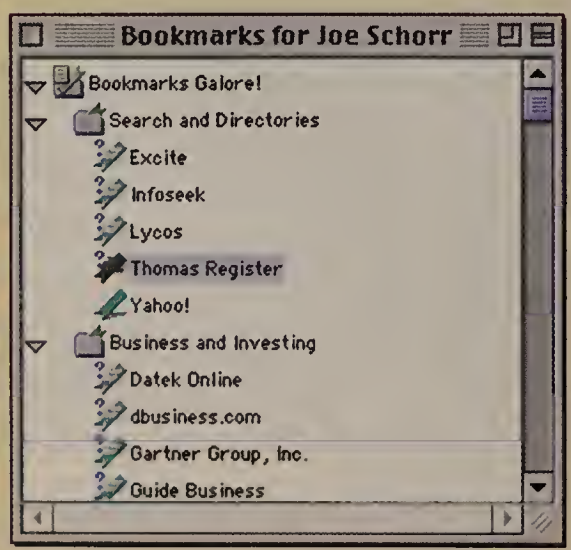
JOSEPH SCHORR coauthored *Macworld Mac Secrets*, fifth edition (IDG Books Worldwide, 1998).

The Keyboard Connection

BOTH INTERNET EXPLORER AND NETSCAPE NAVIGATOR PROVIDE a number of shortcuts for opening your favorite Web pages, but have you noticed that there's no obvious way to navigate to frequently visited sites using only the keyboard? Generally, you have to click on a button or pull down a menu or submenu in order to get to a bookmarked location.

However, both Web browsers do allow mouse-free access to the sites you've already added to the Bookmarks (Netscape) or Favorites (Internet Explorer) list. Just use the commands in the figures below to perform such tasks as opening a folder of bookmarks, deleting a bookmark, and going to a favorite site.

Netscape Navigator 4



Press ⌘-B to open the Bookmarks window.

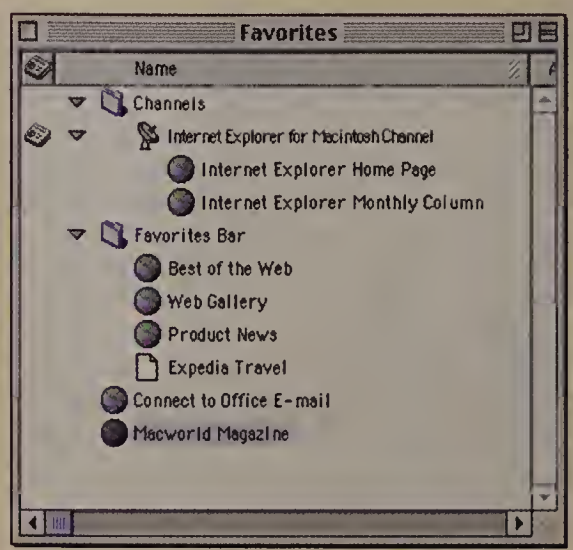
Use the up- and down-arrow keys to move to a location in the list.

Once you've selected a bookmark, press return to launch it.

To edit the name or contents of a bookmark, select it and then press ⌘-I.

Open and close selected folders by pressing return.

Internet Explorer 4



Press ⌘-J to open the Favorites window.

Use the up- and down-arrow keys to move to a location in the list.

Press ⌘–right arrow to expand, and ⌘–left arrow to collapse, selected folders.

To remove an item, select it and press delete.

Once you've selected a bookmark, press ⌘–down arrow to launch it.

Secrets

Tips, Tricks, and Shortcuts

by Lon Poole

AppleScript is great for automating everyday tasks, especially when you're using the speedier PowerPC-native AppleScript in Mac OS 8.5. But some AppleScript commands can be troublesome when they run in the background. For instance, consider the following script, which selects the items in the Recent Applications folder, moves them to the Trash, and empties it:

```
tell application "Finder" select every item
      of folder "Recent Applications" of
      apple menu items folder
   delete selection
   empty trash
end tell
```

Chris Garaffa of Cos Cob, Connecticut, wrote this script, and while it was running he made the mistake of selecting the folder that contained his Web site. To his surprise, the script didn't delete the items in his Recent Applications folder but instead deleted his Web site. The following script doesn't use a Select command, and would have prevented this calamity:

```
tell application "Finder"
   delete every item of folder
     "Recent Applications" of
     apple menu items folder
   empty trash
end tell
```

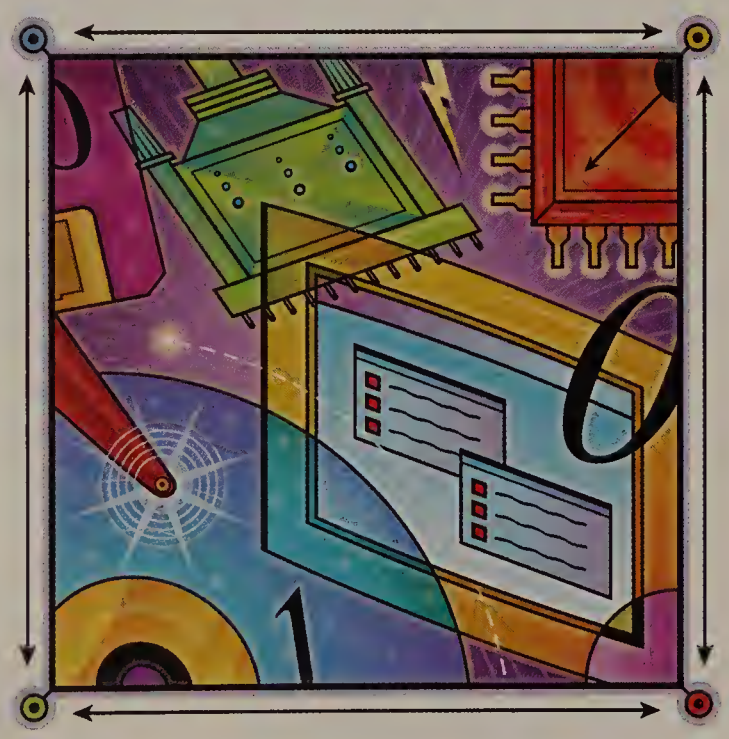
The moral of the story: Be careful about selecting items while running a script in the background, beware the Empty Trash command (which never displays a warning), and always back up your files!

Correct Dictionary Misteaks

Q. While using the spelling checker in a WordPerfect 3.5 document, I accidentally clicked Add instead of Replace and added a misspelled word to my dictionary. How can I remove the added word? And can I remove words from Microsoft Word's dictionary too?

DOUGLAS MEHR
Gurnee, Illinois

A. Corel WordPerfect stores the words you add to the spelling dictionary in a file named User Dictionary (USA), found in the Language folder inside the WordPerfect folder. To edit this file, double-click it. The file opens in the ST Utility program, which lists the words in the dictionary file and lets you delete and add words.



Word 6 and Word 98 store your words in a file named Custom Dictionary. To edit a dictionary file in Word 98, choose Preferences from the Tools menu, click the Spelling & Grammar tab, and then click the Dictionaries button. In the dialog box that appears, select the dictionary you want to edit by clicking its name—not the check box—and then clicking the Edit button. Word 98 opens the dictionary in a document window and turns off automatic spell-checking.

Find the misspelled word in the document window and delete or correct it. You can also type in new words, but make sure you press return after each new word to put it on a separate line. When you save this document, Word 98 may advise that you could lose formatting if you continue saving; click Yes and don't worry. To reinstate automatic spell-checking, choose Preferences from the Tools menu, click the Spelling & Grammar tab, and turn on the option Check Spelling As You Type.

To edit a dictionary file in Word 6, choose Options from the Tools menu, and click the Spelling tab to see a list of custom dictionaries. Select the dictionary you want to edit and click the Edit button. When Word asks if you want to edit the dictionary as a Word document, click Yes. When asked how you want to convert the dictionary file, select Text Only and click OK. The file opens in a document window behind the Options dialog box; dismiss the dialog box by clicking its Cancel button. Now you can edit the dictionary in the document window.

Open the .exe Files

Q. How can I open e-mail attachments labeled with the suffix .exe, such as tree.exe?

WILLIAM HAMMOND
Ocean Springs, Mississippi

A. Files whose names end with .exe (short for *executable*) are PC programs. Some .exe programs are compressed archives, which you can expand on your Mac using the freeware StuffIt Expander together with the shareware DropStuff With Expander Enhancer,

continues

both from Aladdin Systems (www.aladdinsys.com). To run these programs, you need either a PC or PC-emulation software such as Insignia SoftWindows (510/360-3700, www.insignia.com) or Connectix Virtual PC (650/571-5100, www.connectix.com) for your Mac. If your Mac has PCI or NuBus expansion slots, you can also install a PC-compatibility card from Orange Micro (714/779-9332, www.orangemicro.com) and use it to run .exe programs.

Grab 'n' Scroll

TIP In Mac OS 8.5.X you can scroll through a folder or disk window by grabbing its contents. Just press the ⌘ key, click anywhere in the window, and drag—the pointer turns into a little white-gloved hand.

RICHARD HAYES
Chandler, Arizona

Scrollin', Scrollin', Scrollin' You can scroll through a folder or disk window's contents in Mac OS 8.5 by pressing ⌘ as you click and drag. The bonus: your cursor turns into a little white-gloved hand, à la Mickey Mouse.

Force Text in Excel

TIP A leading hyphen causes Microsoft Excel to interpret the contents of a cell as a formula. If you want to use a leading hyphen but not create a formula, use an en dash (option-hyphen) or an em dash (shift-option-hyphen) in place of the hyphen. Excel treats them like any letter or number.

JIM HENDERSON
Lancaster, California

You can also force Excel to treat the contents of any cell as text by typing an apostrophe at the beginning of the cell contents. Alternatively, format the cell as text (choose Cells from the Format menu, click the Number tab, and double-click Text in the category list). After changing a cell to text format, you may have to press ⌘-U to make the change take effect.—L.P.

Get an Instant XPress Picture Box

TIP To make an instant picture box in QuarkXPress 4.X that's the same size as the document page, open a new document with the Automatic Text Box option turned on and the four Margin Guides set to 0. Then choose Picture from the Content submenu of the Item menu. Voilà!

RANDY OEST II
Washington, Pennsylvania

Read Mail While Roaming

TIP If you want to read and send e-mail via your regular e-mail account while you're away from your computer, you don't necessarily need a Web e-mail account as described in December 1998's *Quick Tips*. Ned Smith of Erie, Pennsylvania, reports that you can access a POP e-mail account from any computer with a Web browser by visiting the Panda Mail site (www.bstar.net/panda/). There you supply the e-mail log-in or user ID (typically the first part of your e-mail address), e-mail password, and server name (for example, *ISPname.com* or *pop.ISPname.com*).

One caveat: Panda Mail probably won't be able to access your e-mail account if the POP server is behind a firewall—typical with some corporate e-mail servers but usually not so with ISP (Internet service provider) servers. Also, to keep your mail private, don't forget to close the browser window when you're done and clear the browser cache as described in December.

Clarify Phone-Line Quality

TIP Instead of calling a 3Com BBS long-distance to check your phone-line quality as suggested in January 1999's *Quick Tips*, get your modem to report the phone-line quality while it's connected to your ISP, says William C. Roemer of Fort Collins, Colorado.

In the communications module of ClarisWorks or a terminal program such as ZTerm, which is $30 shareware (not freeware as stated in January), type **AT&F1** and press return. Then type **ATDT** followed by the phone number you usually dial when you connect to your ISP—for example, **ATDT555-1212**—and press return. After the modem dials and connects, you'll probably see a message from your ISP asking for your log-in name. Ignore this request and type **+++** but don't press return. The terminal program should display OK on the next line. Type **AT&V1** and press return. The program displays connection statistics, including an item labeled something like Line Quality followed by a number. A Line Quality value of 25 or less indicates that the modem can connect at high speeds. Values greater than 25 signify slower connections.

Roemer says factors that affect line quality include your modem's distance from the telephone switching facility and the number of devices (telephones, fax machines, answering machines, and the like) connected to the same line. For example, with all telephones unplugged from the phone line, Roemer's connection speed hovered between 48 Kbps and 50Kbps. But when four telephones were connected to the same line, the connection speed dropped to between 28.8 Kbps and 31.2 Kbps. In addition, Roemer notes that a V.90 modem will frequently not connect at 56 Kbps if the ISP's modem supports only the X2 or K56flex standard.

Antonino P. "Nino" Giuliano of Palm Bay, Florida, observes that if your modem is more than 19,000 feet from the phone company's analog-digital switch, you can only expect a connection of between 24 Kbps and 28.8 Kbps with any kind of 56-Kbps modem. **m**

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 8.5 Bible* (IDG Books Worldwide, 1997).

All shareware and freeware mentioned in *Quick Tips* is available from the Macworld Online software library (www.macdownload.com).

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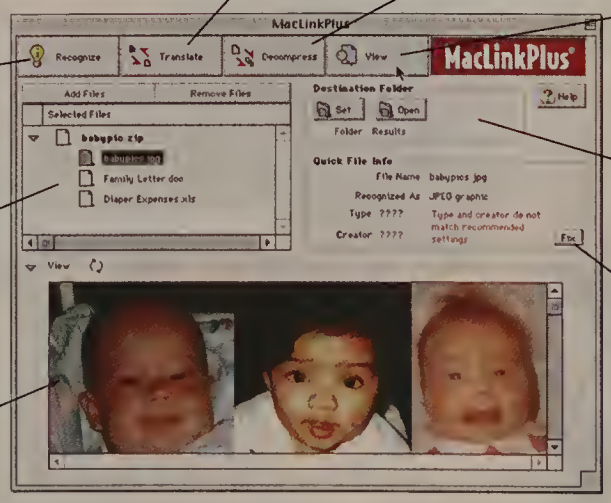

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Create

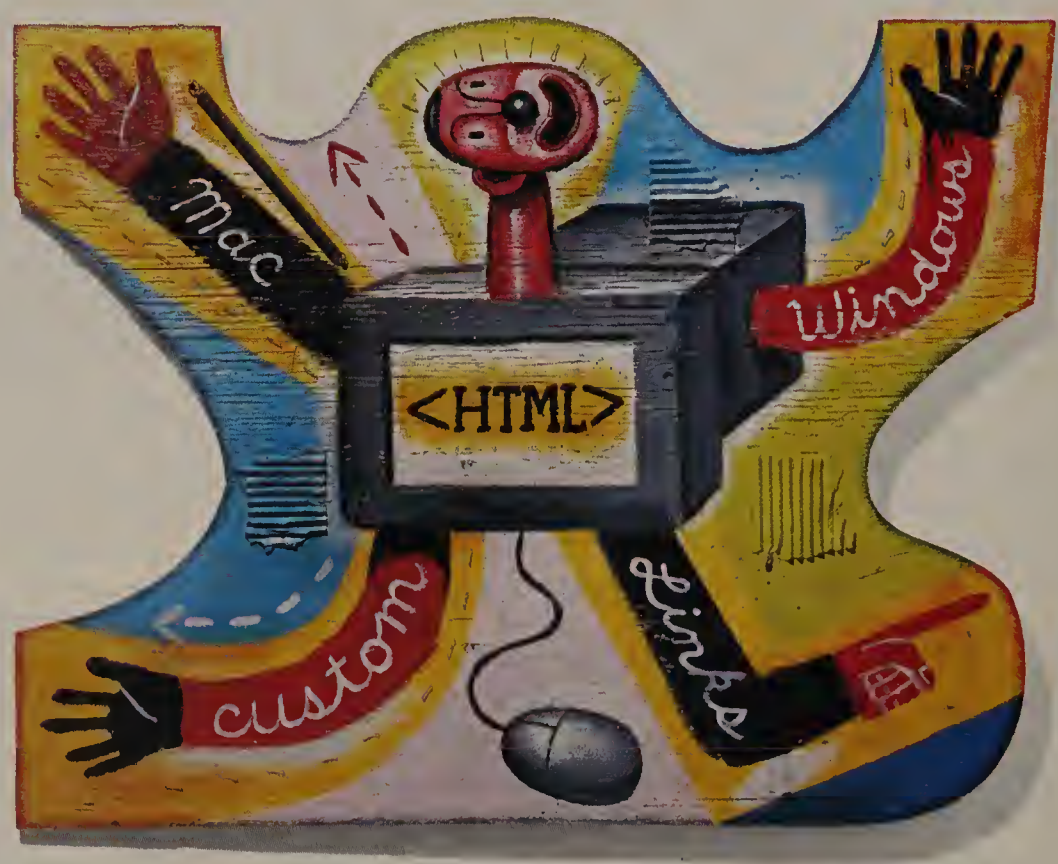
Presenting with HTML

USE THE LANGUAGE OF THE WEB TO BUILD BUSINESS PRESENTATIONS

by Jim Heid

About to participate in a dog-and-pony show? Besides washing your dog and brushing your pony, you're no doubt also planning to create an on-screen presentation to accompany your rant. In fact, you were probably about to open PowerPoint 98 when I interrupted you. Good thing. Microsoft PowerPoint 98 is a great program, but in today's Web-centric world, it might not always be the best choice for creating a presentation. A better choice may be an HTML editor such as Macromedia's Dreamweaver 2 or Adobe's GoLive CyberStudio—or even Apple's SimpleText.

Even if you aren't the type who dreams in HTML, you'll find that creating presentations using HTML isn't too difficult. To make it even more painless, I've created a set of template pages to get you started (see "A Simple HTML Presentation"). And if you just can't bear to tear yourself away from PowerPoint 98, you can use its HTML-export features to turn your PowerPoint presentation into HTML (see "Convert PowerPoint Presentations to HTML").



RICCARDO STAMPATORI

WHAT YOU NEED

- HTML editor or SimpleText
- Web browser
- Graphics program (optional)

Why HTML?

With PowerPoint 98 able to do everything except wash dogs and brush ponies, why would you want to descend into the depths of HTML to create a presentation? Several reasons.

Easy Distribution You can quickly post the presentation on your company's Web site after the event. If you build the presentation using relative links (as I describe shortly), you can also distribute it on floppy disks or CD-ROMs.

More Depth Chances are that the Web is teeming with sites that relate to your topic. In an HTML-based presentation, it's a cinch to include links to those sites. Your presentation then evolves from a simple series of bullet points into a deeper information resource—a pint-size, portable Web site unto itself.

Playback Versatility The nightmare: five minutes until show time and you realize you've forgotten the PowerPoint player—or for some reason you can't install it on the presentation computer. But virtually every personal computer on the planet has a Web browser, making HTML a broadly supported foundation on which to build your pitch.

continues

Multimedia Support Thanks to browser plug-ins and Dynamic HTML, you don't have to strip QuickTime movies, animations, audio, and other glitz from your presentation. You will sacrifice some of its playback versatility, since in order to take advantage of these flashier goodies you'll need to bring and install necessary plug-ins on the presentation machine. But if you're willing to make the effort (and risk the glitches that can accompany using plug-ins), you can do almost anything with HTML that you can in PowerPoint.

A Few Building Tips

Whether or not you use the templates I created, employ these tips for building your HTML presentation. Many of these also apply to conventional Web sites.

Watch Your Screen Size PowerPoint and other presentation programs automatically resize slides to accommodate the screen resolution of the computer you're using. Web browsers reflow text but won't resize graphics and other elements. So, keep your destination screen size in mind when creating the presentation—a good rule of thumb is to design for a screen resolution of 640 by 480 pixels.

Name Files Carefully To ensure that your presentation will run properly on any Web-aware platform, name your HTML pages and their support files using all lowercase letters, and in the boring 8.3 style (up to eight characters, a period, and a three-character file extension): for example, dogshow.htm instead of Westminster.html.

Keep Your Links Relative When linking to graphics or to other pages in the presentation, use relative links rather

A Simple HTML Presentation

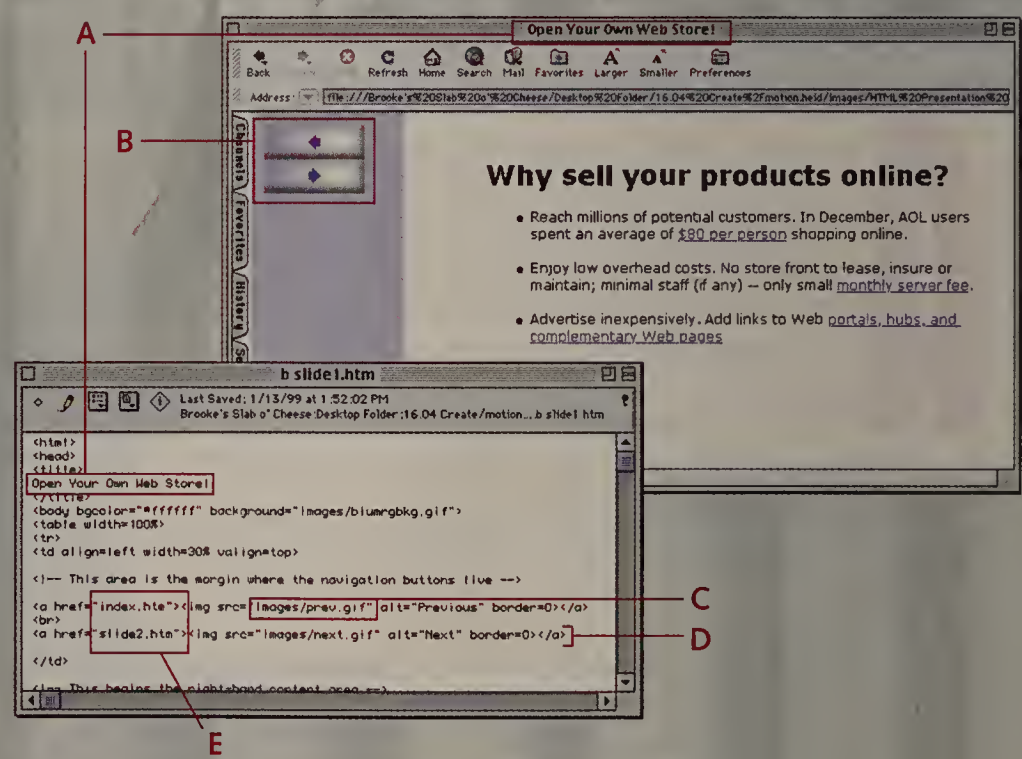
TO GIVE YOU A HEAD START IN BUILDING HTML-based presentations, I created a set of simple template pages, which you can download from www.macworld.com/more/. There's one template for a title slide, one for a bullet-point slide, one for images, and so on. The templates have a simple design that works across different browsers and platforms—they're not built for adding flashy animated effects common to PowerPoint presentations.

You can open and modify the template pages with a text editor such as SimpleText or Bare Bones Software's BBEdit (781/687-0700, www.barebones.com), or with a WYSIWYG HTML editor such as Macromedia's Dreamweaver 2 (415/252-2000, www.macromedia.com) or Adobe's GoLive CyberStudio or PageMill (408/536-6000, www.adobe.com). If using a WYSIWYG editor, switch to HTML view in order to see the comments I've planted in the HTML. Here's how to work with the templates.

1 Adapt the title slide. I called the title slide index.htm, the name most commonly used by Web servers to denote a directory's default home page. It simplifies posting your presentation on the Web: simply stash the presentation in its own directory, and refer to it with a nice clean URL such as www.yourdomain.com/speech/. If you're using a Mac-based server such as StarNine's WebStar (510/649-4949, www.starnine.com), you might need to change this file's name to default.html. If you're willing to spell out a full URL—like www.yourdomain.com/speech/title.htm—for the online version of the presentation, you can change its name to anything you like. But keep in mind the filenaming recommendations I mentioned in the main text.

You'll also need to replace the text between the template's <title> tags (which appears in the browser window's title bar) and any other text in the template that reads "Insert . . . Here."

2 Stash the images. If your presentation contains graphics, tuck them in the folder named Images and use relative URLs to refer to them.



Text between the <title> tags (A) appears in the browser window's title bar. Images for slide navigation buttons (B) are accessed using relative links (C), which make your presentation portable. Edit each slide's previous and next tags (E) to reflect the file names of the previous and next slides, and omit this entire line (D) in the last slide.

3 Duplicate and modify. If your presentation is like most, many of your slides will contain several bullet points—base these on the template file slide1.htm. For slides that have a single idea, statistic, or quote, use slide2.htm. Using the Duplicate command (⌘-D) in the Finder, make as many duplicates of these two files as you need and modify each duplicate accordingly. Remember to edit the HTML for each slide's navigation buttons so the next and previous buttons work properly.

4 Install the right fonts. I used Microsoft's Verdana font, which is designed to be legible on low-resolution monitors and is included with the Mac OS and with Windows 98. If your presentation machine doesn't contain Verdana, the browser will fall back to Geneva, Helvetica, or Arial (a Helvetica look-alike in Windows). You can download Verdana and other screen-optimized fonts from www.microsoft.com/typography/fontpack/.

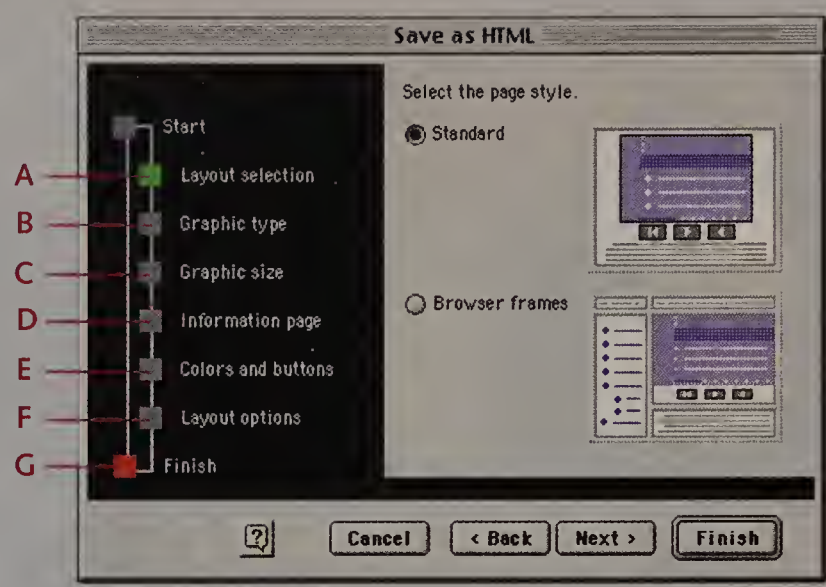
Convert PowerPoint Presentations to HTML

YOU CAN'T IMAGINE STANDING AT A PODIUM without PowerPoint 98, but you still want the distribution flexibility that HTML provides. The answer: PowerPoint's Internet Assistant, which swings into action when you choose Save As HTML from PowerPoint's File menu.

The Internet Assistant's six dialog boxes provide a broad array of options for converting your presentation. You can, for instance, have the presentation's slides displayed within a frame set, with one frame providing one-click access to each slide. You can even make the original presentation file available for downloading.

The Save As HTML feature converts each slide into a graphic, which enables PowerPoint to retain the slide's formatting—all the way down to its color scheme and template design. On the downside, this means that each slide is much bigger than an equivalent screen created in HTML. PowerPoint also creates text-only versions of the slides, but they're bland and bare as bones.

PowerPoint's Internet Assistant does a good job of bridging the gulf between PowerPoint and HTML; there's no better way to quickly convert a PowerPoint pitch for display in a browser. But if your primary goal is to create a truly HTML-based presentation, you're better off using an HTML editor.



The Internet Assistant

A Choose between standard and framed layout. (Framed layout provides faster access to each slide.)

B Convert each slide into a GIF or a JPEG file. (Opt for GIF unless slides contain photographs.)

C Determine how large you want each graphic to be. (The default setting, 640 by 480 pixels, creates the smallest and most portable files.)

D Enter your e-mail address, home-page URL, and other descriptive information that you want to appear on the presentation's opening page.

E Choose between standard browser colors (the default, which I recommend) or custom colors for the background, text, links, and visited links.

F Specify placement of the slide-navigation buttons, and whether to include slide notes on each page.

G Click to carry out the conversion.

than absolute ones. A relative link describes a location *relative* to the location of the page with the link—for example, /images/graphic.gif. An absolute link spells out a complete location—for example, hard_drive/presentation/images/graphic.gif.

Relative links make it easier to move the presentation (or site) from one disk drive or server to another. Absolute links tie your project to a specific disk or Web address and won't function when your project is moved.

Most current Web authoring tools create relative links automatically, but it's possible sometimes to wind up with an absolute link. That's why it's always a good idea to . . .

Test It before Show Time After creating your presentation, move it to another machine and test it to make sure all your links work properly. If you don't have a second computer, move the entire presentation folder to a different location on your hard drive and test it from there. This will at least let you sniff out any link problems.

Carry It on a PC Disk The best medium for transporting your presentation is a PC-formatted disk or removable-media cartridge. Because all PowerPC Macs can read PC-formatted media, you'll be able to copy your presentation onto either a Mac or a Windows computer with no worries.

After the Show

Your pitch doesn't have to end when the presentation is over. As already mentioned, using relative links throughout makes it easy to post your presentation on a Web site or distribute it on floppies. But to really make an impression, consider distributing it on business card–size CD-ROMs, such as McI Technologies' Digital Cards (781/431-7030, www.digital-cards.com).

Digital Cards have dimensions identical to those of dead-tree–based business cards, but they can be used in any standard CD-ROM drive. A Digital Card holds only 18MB, a fraction of the 600MB capacity of a normal CD-ROM but more than enough to hold an ambitious presentation containing QuickTime movies.

Digital Cards are a bit pricey—as much as $4.50 each, depending on how many you order. But their unique capabilities and high-tech appeal make them a striking finish to big-budget presentations. Anyone who receives one is likely to try it out just to see if it really works. It's a great way to guarantee that someone will take another look at your ideas—all of which are crisply showcased in a snazzy and accessible HTML-based presentation. **m**

A contributor to *Macworld* since 1984, JIM HEID (www.heidsite.com) writes and lectures about Web development and multimedia.

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Dynamic HTML without Tears

CREATE SLICK DHTML EFFECTS IN CYBERSTUDIO WITHOUT PROGRAMMING

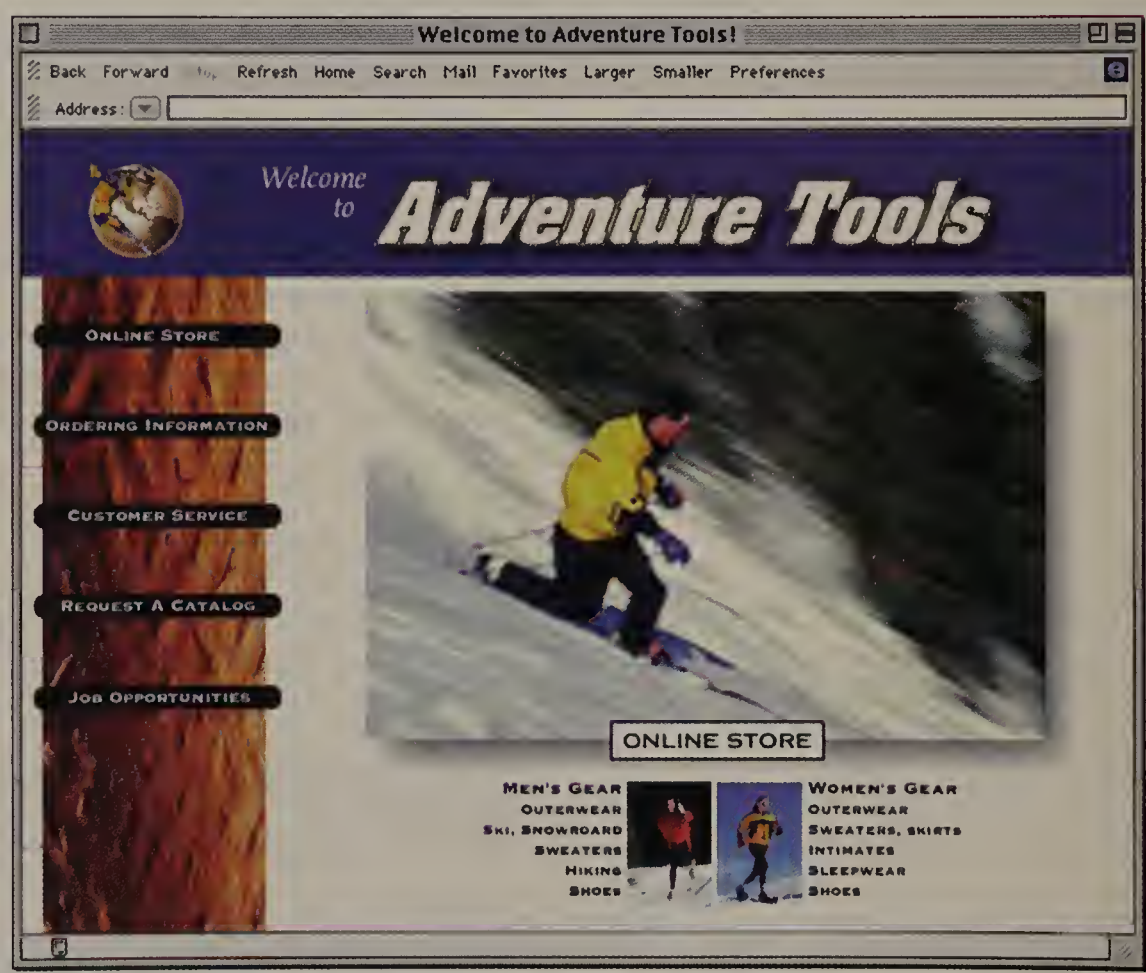
by Tom Negrino

Web designers benefit from vastly broadened possibilities for their sites with the advent of Netscape's and Microsoft's version 4 browsers. Thanks to technologies such as Cascading Style Sheets and JavaScript, designers can create pages with precisely positioned elements and easy animation, and they have fine control over the look and style of text.

But there's a catch. Cascading Style Sheets are deeply geeky and hard to code by hand, and JavaScript is an honest-to-gosh programming language that requires serious effort to master. In fact, under the rubric of Cascading Style Sheets, there are actually two different critters: CSS1 and CSS-P. CSS1 allows you to specify the look and style of type and some other Web-page objects; CSS-P (*P* for positioning) lets you specify the position of page objects and animate objects on the page. You can manipulate both types of style sheets via JavaScript, and the result is called Dynamic HTML, or DHTML for short.

Another catch is that you can view DHTML effects correctly only using version 4.0 or later browsers. Even then, some effects are Internet Explorer–specific and some are Navigator-specific. It's essential to preview your pages in both browsers, preferably in both the Mac OS and Windows.

Whole books explain how to code DHTML, but we'll leave the programming to people who enjoy that sort of thing. For the rest of us, there's GoLive CyberStudio Professional Edition 3 and later ($299; 650/463-1580, www.golive.com), which offers friendly, visual DHTML tools. (At press time, Adobe acquired CyberStudio.) While you simply drag objects around on the screen and fill out a few Inspector dialog boxes, CyberStudio hums along behind the scenes, writing the Cascading Style Sheets and JavaScript code.



To illustrate some DHTML elements, we created a few pages of a mythical sporting-goods site called Adventure Tools (you can see this site in action at www.macworld.com/more/). The opening page of the site is an animated splash screen with three elements that fly across the page and assemble to form the Adventure Tools logo (see "Open with Animation"). A few seconds after the animation ends, the splash screen automatically jumps to the site's home page (shown above).

With DHTML-savvy tools such as CyberStudio Professional Edition, designers get to concentrate more on designing and less on programming, and don't have to rely on Web programmers. You can create sites faster and more easily —and in the world of Internet Time, this is an important consideration. m

TOM NEGRINO is coauthor of *JavaScript for the World Wide Web, Visual QuickStart Guide*, second edition (Peachpit Press, 1998).

continues

WHAT YOU NEED

- GoLive CyberStudio Professional Edition 3
- Web browser
- Web graphics editor (optional)

MICHAEL RATTARY

Open with Animation

THE SPLASH SCREEN IS YOUR SITE'S SNAZZY "FOYER," WHICH USHERS WEB SURFERS to the main page. This is a great place to employ animation. There are three moving elements on our splash screen: a globe, a skier, and the *Adventure Tools* title. Each element is a transparent GIF image embedded in a floating box. The animation consists of the GIFs flying in along different paths, finally assembling the complete logo (see this in action at www.macworld.com/more/). It's important that the images be transparent GIFs, so you can see one image behind another when they're stacked.

1 Begin by dragging the Floating Box icon (**A**) from the Basic tab of the CyberStudio Palette onto an empty page you've named Splash.html. You do this once for each image in your animation (in this case, three images). Into each floating box, drag an Image placeholder (**B**) from the Basic tab of the Palette. In the Image Inspector, specify the image file with the Browse button (**C**) or use the Point & Shoot button (**D**) to find the image in the Site window. Resize the floating boxes so they fit snugly around their images, and then position the boxes where you want the images to be at the end of the animation.

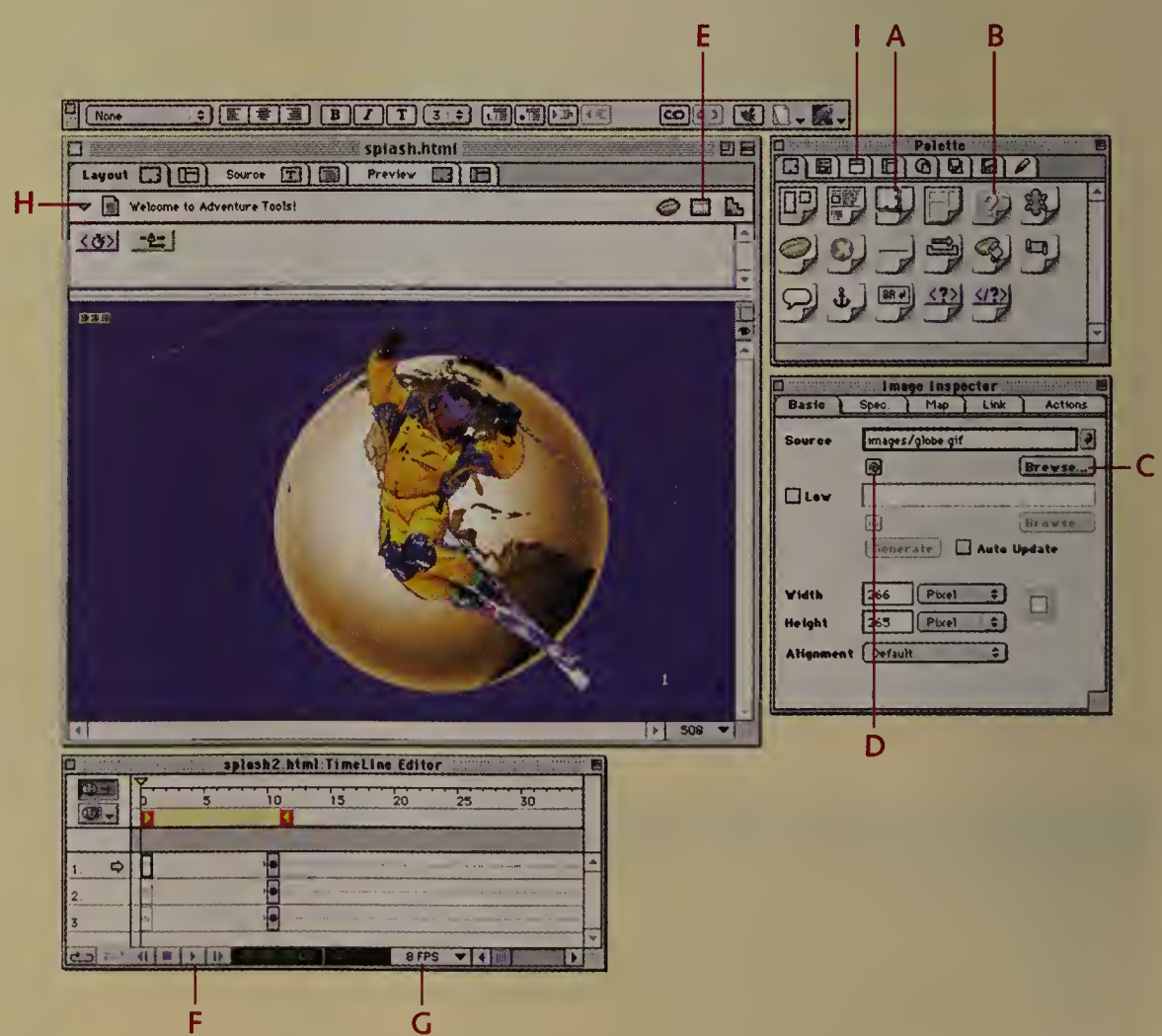
2 To animate the first floating box, click on the edge of the box to select it. Then open the Timeline Editor by clicking on the Timeline Editor button (**E**) in the upper right corner of the document window. In the Timeline Editor window, there are three tracks and three keyframes, one for each of the floating boxes. These keyframes represent where the images will end up, so you need to reposition them along the timeline.

3 Decide how long you want the animation to last, and drag the three keyframes to that spot on the timeline. After you move the keyframes, you'll notice that each track leaves behind a dimmed keyframe at the beginning of the timeline (indicating that the track is not visible at that point on the timeline). Click on the dimmed keyframe on track 1 to select it. Click on the Visible check box in the Floating Box Inspector, and then drag the floating box in the document window to where you want it at the beginning of the animation. Click on the play button (**F**) at the bottom of the Timeline Editor to preview your animation. You can adjust the speed of the animation by changing the frames per second via the FPS pop-up menu (**G**) at the bottom of the Timeline Editor.

4 If you want, you can add keyframes in the middle of the animation by ⌘-clicking on a track on the timeline. This allows you to create a complex path the image will follow. You can smooth the path by choosing Curve under Animation Type in the Floating Box Inspector.

5 Repeat the above processes to animate the other two floating boxes.

6 Now, to make the splash screen switch automatically to the home page, you'll use an HTML tag that goes in the header of the page. It's a short bit of code, so if you like you can switch to CyberStudio's Source mode and type **<meta http-equiv="refresh"content="5;URL= index.html">** between the **<HEAD>** and **</HEAD>** tags. If you prefer Layout mode, click on the disclosure triangle (**H**) at the top of the splash page to open up the Head Section of the page. Under the Head tab (**I**) in the Palette, drag the Refresh icon to the Head Section. In the Refresh Inspector that appears, enter a delay time in seconds (5 is a good number), click on the URL button, and enter the name of the page to which you want to jump.

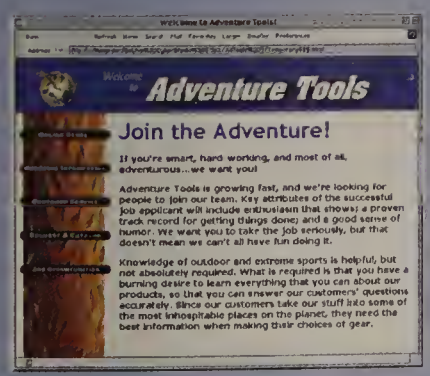


What Browser Is That?

FANCY DHTML ANIMATION LOOKS GREAT TO PEOPLE WHO have version 4.0 or later browsers, but people with earlier versions (and that includes most people who use America Online) won't see the animation. For these folks, the Adventure Tools splash page will just look like a blank colored page. You can't control what browsers people use, but you can make your page handle older browsers gracefully by having it perform *browser detection,* which sniffs out the browser version that's loading the page. If the browser is capable of handling DHTML, the page loads normally. But if it isn't, the browser switches to a simpler page you've prepared without DHTML. You can use browser detection on the entry page of your site to redirect users with older browsers to a completely different, simpler version of your site.

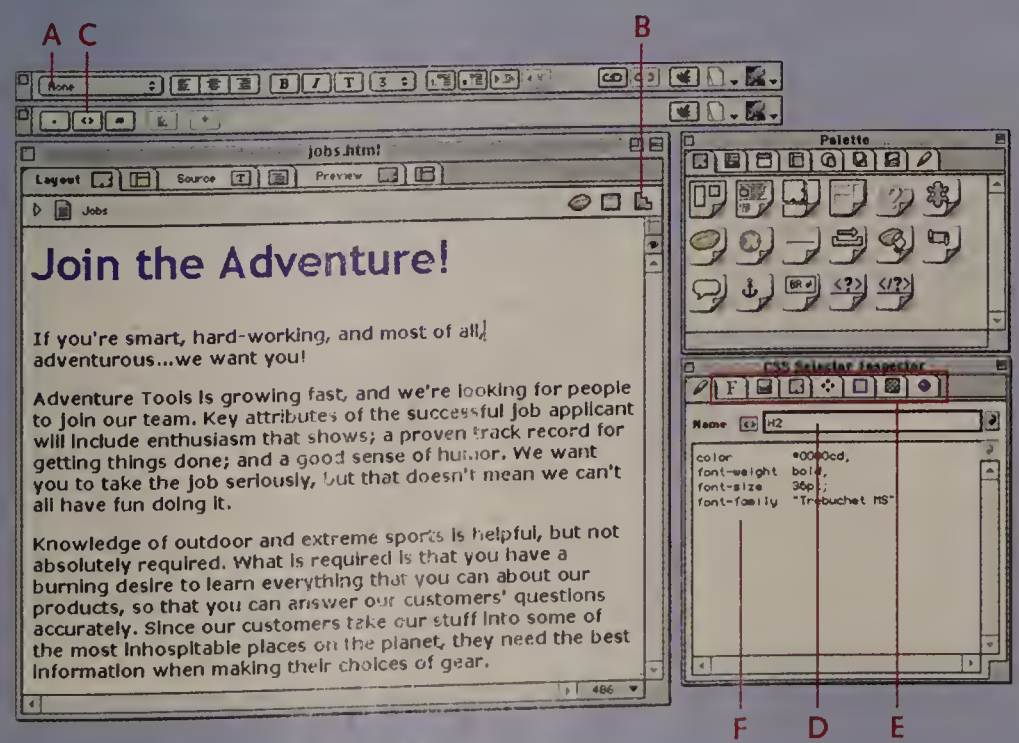
1 To add browser detection to the splash page, drag the Browser Switch Item (A) from the CyberObjects tab (B) in the Palette to the header of the splash page (click on the disclosure triangle (C) to open up the Head Section).

2 The Inspector window changes to the Browser Switch Inspector. It's usually fine to leave Supported Browsers set to Auto, but if you have custom JavaScript on your page that you know works with some older browsers, you can enable those browsers here. In the Alternate Link field (D), type the name of the page to which you want the user's browser to jump if that browser doesn't pass the version test. You can also use the Browse button (E) to find the alternate page on your hard drive, or you can use the Point & Shoot button (F) to select a page in the Site window.



Styling Text

CASCADING STYLE SHEETS HELP SOLVE A PET PEEVE OF WEB DESIGNERS: LACK OF FINE control over the style and appearance of text. The detailed ins and outs of Cascading Style Sheets are beyond this article's scope, but we can show you how to create Tag Styles, which let you apply style rules to any HTML tag within a document. For example, you can apply instant styling to all of the **<H2>** tags throughout your document so that when you change the style definition, all text in your document tagged as H2 also changes.



1 Select some text on your page and choose Header 2 from the tool bar's Paragraph Format pop-up menu (A). To create a text style sheet, click on the Style Sheet button (B) at the top of the document window. A new style-sheet window opens and the style tool bar appears on top. Click the New Tag button (C) on the tool bar.

2 In the CSS Selector Inspector, type **H2** in the Name field (D). Type in the name of a valid HTML tag, but omit the usual angle brackets (< and >). Set the font, style, background, alignment, and other attributes for the new H2 style using the rest of the tabs (E) in the CSS Selector Inspector. Note that as you change the attributes, the text you designated as H2 also changes. When you're done, the formatting you selected appears under the Basics tab (F).

Make Easy Rollover Buttons

ONE OF THE MOST USEFUL AND COMMON DHTML EFFECTS IS the button rollover. This simple animation makes a button change appearance when the user moves the mouse cursor over the button or clicks on it. What actually happens is that the browser swaps one version of the button image for another. The Adventure Tools site uses rollovers in the navigation bar on the main page. Here's how.

1 First, make a button. Adobe's ImageStyler and Macromedia's Fireworks make creating rollover buttons a snap, much easier than with Adobe Photoshop. But no matter what you use, make sure the different images for the button's various states (rollover, click on, and so forth) are exactly the same size and resolution. Otherwise, the browser will scale the second image to fit into the same space the first image took up, and the transition between the images will look awkward.

Also make sure your buttons are opaque GIFs or JPEGs, not transparent GIFs. If the image is transparent, the user will see one button on top of another, instead of one button replacing another.

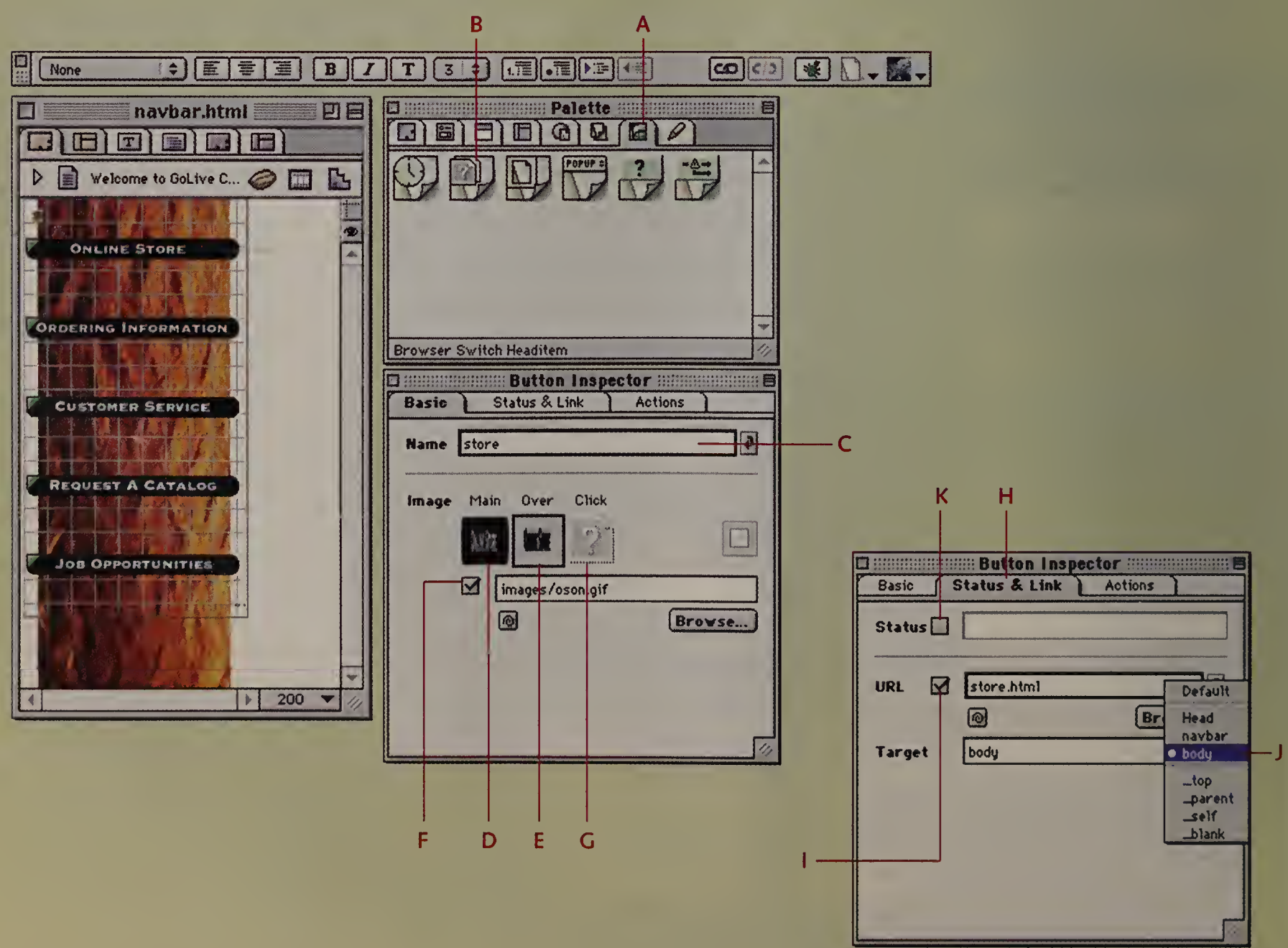
2 Now open the page that will contain the button. In the CyberStudio Palette, click on the CyberObjects tab (A), and then drag the Button Image icon (B) to the document window.

3 Name the button in the Button Inspector (C), and then click on the square marked Main (D). This is the image you'll see when the cursor is not hovering over the button. Use the Browse button or Point & Shoot button to select the image.

4 Click on the box in the Button Inspector marked Over (E). Click on the check box next to the Image Path field (F), and then use Browse or Point & Shoot to select the image you'll see when the cursor is over the button. If you like, you can repeat the process a third time with the Click box (G), which replaces the button image with a third image when the user clicks on the button.

5 Buttons are usually linked to other pages. Click on the Status & Link tab (H), click on the URL check box (I), and then use Browse or Point & Shoot to create the link to the new page. Because the navigation bar on this page is part of a frame set, you'll need to set the target of the link. Choose Body from the pop-up menu next to Target (J).

TIP If you want a text message to show up in the status bar of the browser when the user rolls the cursor over a button, click on the Status check box (K) and enter your message.



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Extend QuarkXPress

FREEWARE AND SHAREWARE XTENSIONS THAT BOOST PRODUCTIVITY

by David Blatner

Almost all QuarkXPress users know about XTensions—those plug-ins that add functionality to XPress—but relatively few people go out of their way to use them. This is unfortunate, because although QuarkXPress is a good program, you won't really see it shine until you start using it with XTensions.

There are two reasons people tend to shy away from XTensions: First, it's often cost-prohibitive for small companies to buy more than one or two (so some don't buy any at all). Second, people still feel the burn of the worst disaster in desktop publishing history: Pasteboard XT.

When Pasteboard XT first came out, it changed people's documents so that you had to have this free XTension loaded to be able to open the document. People were so angry that the developer soon released a new version to fix the problem. But in the short time that lapsed, the old XTension made its way around the world. Even though every version of the XTension since then has removed the requirement, the old version still haunts us. (If you run into this problem, visit the Markzware Web site [www.markzware.com] to get a newer version of the XTension or PBFix; then just open the file and resave it. Also from Markzware, Pasteboard XTerminator batch-removes the requirement from all the XPress documents on your hard drive.)

If you suffer from XTension woes, the antidote is an abundance of other XTensions that are free or really inexpensive and that cure headaches rather than cause them. We can't guarantee that the XTensions in this article are bug-free, but most of them are so simple that not much can go wrong. For all of you who have asked, "Why won't XPress let me do this?" the answer is just a download away.

JEFF NEUMANN

Watch Out

One of the most important rules of XTensions is: Be careful of the outdated ones. Some older XTensions—such as the Bob and Son of Bob XTensions from Quark—can cause major crashing problems with newer versions of XPress. Other older XTensions may cause subtle problems or simply won't run. It's best to avoid using an XTension on important documents until you know that it works for you.

Another potential pitfall is not having enough RAM allocated to QuarkXPress. The more XTensions you have loaded, and the more complex those XTensions are, the more RAM XPress needs.

Maximum Efficiency

While some users still balk at using XTensions, it's clear that adding functionality to XPress will increase your productivity. Sure, there are expensive XTensions out there—and the people who need them are happy to pay for them. There are also low-cost bundles of XTensions—such as QX-Tools, from Extensis (www.extensis.com); XPert Tools, from a lowly apprentice production (www.alap.com); and Xdream, from Vision's Edge Software (www.visionsedge.com)—that offer a lot of punch for a little money. Nothing beats the joy of a freeware or shareware XTension that saves you an hour's worth of time. Of course, not every XTension in the sidebar "Essential Shareware XTensions" will be a perfect fit for what you need, but you should be able to find at least a few jewels here. m

DAVID BLATNER is the author of *The QuarkXPress 4 Book* (Peachpit Press, 1998) and *Real World Photoshop 5* (Peachpit Press, 1999). You can find him at www.peachpit.com/blatner/.

continues

Essential Shareware XTensions

DOWNLOADS TO FINESSE QUARKXPRESS

QUARK'S XTENSIONS Quark (www.quark.com/ftp007.htm) has released several XTensions, including two that are must-haves for anyone who makes pages in QuarkXPress.

Type Tricks adds Make Fraction and Make Price features (which automatically format fractions and prices), plus the ability to remove all manual kerning or add word spacing to selected text.

Jabberwocky fills any text box with (sometimes humorous) dummy text. If you're tired of the old *lorum ipsum*, then this is the XTension for you.

Quark's Web site offers several other XTensions, such as a filter that lets you import GIF images and another that lets you import text from Microsoft Word 98.

TEXT QuarkXPress lets you do a lot with text, but there's always room for improvement. These four XTensions help you manage your text better than ever.

Sort Text (Durrant Software; www.durrant.co.uk) sorts every paragraph in a selection alphabetically or numerically (as long as the paragraphs are numbered).

Text Insets (Durrant Software) lets you change the text-inset amount for each of the four sides of a text box.

Word Counter XT (Markzware; www.markzware.com) counts the number of characters, lines, and words in your selection, your text box, or even the entire page. If you're an editor or a writer, this XTension is essential.

Overflow XT (Markzware) provides you with a palette that lists all *overset* text boxes (boxes that contain more text than they can hold). It even lets you automatically enlarge boxes until the text fits. Very nice.

PICTURES Any way to speed up working with pictures in XPress will put a smile on a production artist's face. Here are three XTensions that should do the trick.

DavidsPlace XT (Jintek; www.jintek.com) lets you import graphics or text without first having to make a picture or text box (it does so by creating a Place menu item you can choose from XPress's File menu). What's more, the XTension builds picture boxes on the fly that are exactly the size of the picture.

PictAttributes XT (Markzware) saves the scaling, rotation, skew, and offset of your graphics when you use Get Picture to replace an image in a picture box.

Drag-n-Drop XT (Extensis; www.extensis.com) lets you import pictures by simply dragging them from your desktop to your QuarkXPress page. If you've got a big monitor, you'll love this convenience.

EnhancePreviewXT-SE (Koyosha; www.koyosha.com) replaces XPress's murky screen previews of TIFF files with high-resolution images. It lets you see how your pages really look.

PREFERENCES Why can't you lock guides in XPress? Why is there no way to tell a spot color from a process color in the Colors palette? Fortunately, there are XTensions that let you control these and other preferences.

S&R Default Folder (Durrant Software) fulfills one of the most common requests: the ability to change the default settings in the Step And Repeat dialog box. It's easy, it's quick, and it's essential for any hard-core XPress user.

PageBorder XT (Vision's Edge Software; www.visionsedge.com) places a border around your page when you print your document. This is extremely useful when you're printing a proof of any page that's smaller than the paper you're using.

Bold Spot XT (Markzware) is the best at helping you determine which colors are spot colors and which are process in the Colors palette: when the XTension is loaded, all the spot colors appear in bold type.

Lock Guides XT (Markzware) gives you two options: lock all the guides or unlock all the guides. It's basic, but anyone who has ever accidentally moved a guide knows this could be a real lifesaver.

GENERAL PRODUCTIVITY Here are a handful of other XTensions that give you some clever shortcuts.

QX-Shadow (Extensis) is a godsend for anyone who has to make more than one drop shadow per week. It automatically builds drop shadows behind any object on your page. There are commercial XTensions with more features, but this one has everything that many people need.

xStyle (Em Software; www.emsoftware.com) lets you create, edit, and apply style sheets much faster and more conveniently than with XPress's built-in Style Sheets palette.

PasteBox XT (Markzware) lets you paste a box or group of boxes to another page, giving the box exactly the same placement on the new page that it had on the original. You can even paste the box or group to the same spot in another document.

Navigator XT (Vision's Edge Software) opens a palette that displays your page geometry and lets you navigate around your document quickly. Again, there are commercial XTensions that do this better, but this one is free.

Script Manager XT (Vision's Edge Software) is a natural for anyone using AppleScripts with XPress. It lets you list and run your scripts and even offers script sets and on-screen object naming (instead of making you do this through a script).

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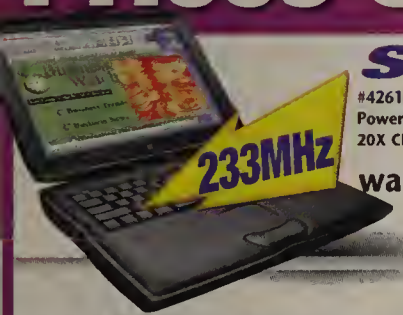

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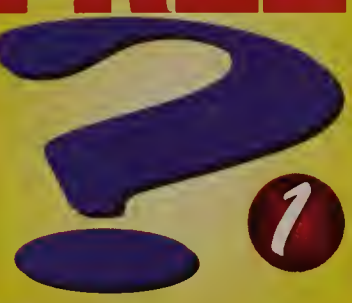

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- 32MB of SDRAM; two SODIMM slots support up to 256MB
- 64-bit memory bus

Storage

- Internal 4GB IDE hard disk drive
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Connectivity

- Two high speed Universal Serial Bus (USB) ports (12 Mbps), which support USB devices such as keyboard, mouse, printer, storage devices, and USB hubs

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- Built-in 10/100BASE-T Ethernet
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- Incredible, high resolution display... MultiScan, tiltable shadow mask color display; 15-inch (13.8-inch diagonal viewable image size); .28mm dot pitch

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- 512K backside level 2 cache on processor module
- 133MHz dedicated 64-bit backside bus
- Mac OS 8.5 pre-installed
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Multimedia capabilities

- Incredible, high resolution display... MultiScan, tiltable shadow mask color display: 15-inch (13.8-inch diagonal viewable image size), .28mm dot pitch
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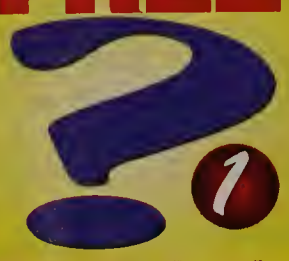

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- PowerPC G3 processor running at 300, 350 or 400MHz
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- System bus running at 100MHz (instead of the 66MHz bus on earlier models) boosts performance speeds, reduces bottlenecks
- Support for hard disk storage up to a staggering 100GB
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- Two high speed FireWire ports for digital video and still cameras, printers, scanners and other multimedia peripherals
- Two USB ports for keyboards, mice, printers—up to 127 devices at once
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- Translucent case, inspired by the iMac
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- ATI RAGE 128 Graphics Accelerator provides incredible 2D/3D performance for graphics intensive games
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- Built-in FireWire—ideal for digital video

BYTEmark integer test

Power Macintosh G3/400	13.31
Power Macintosh G3/350	11.51
Power Macintosh G3/300	9.85
Pentium II/450	6.22
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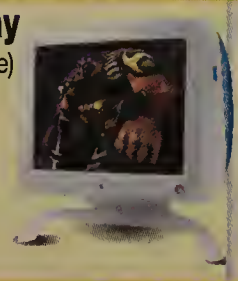

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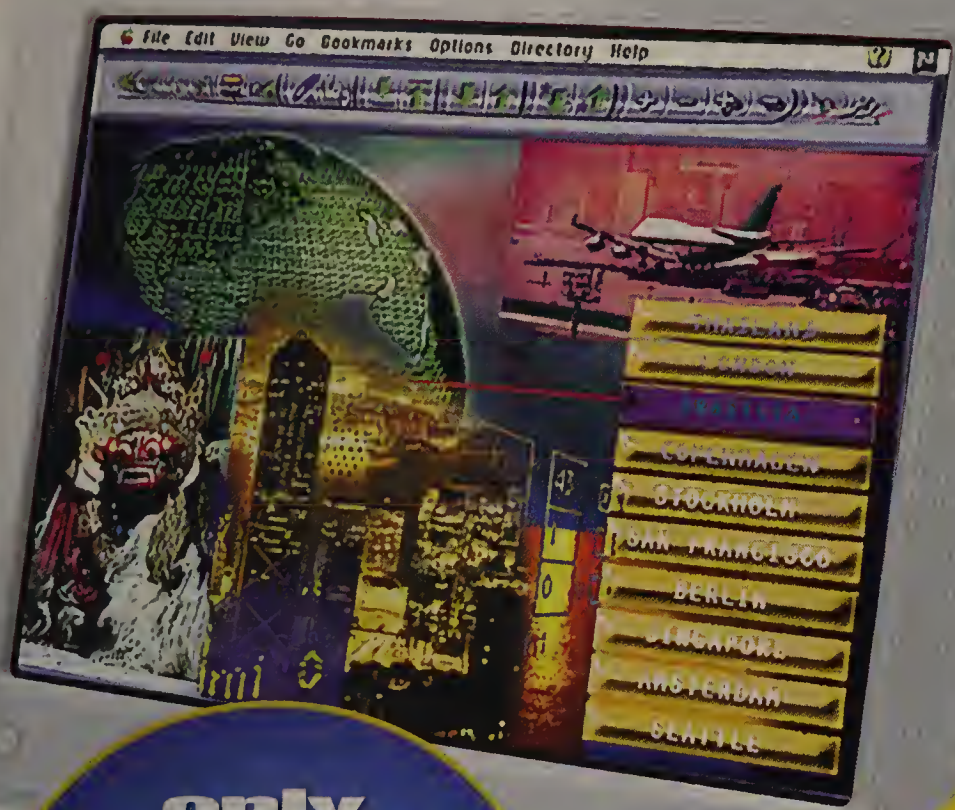

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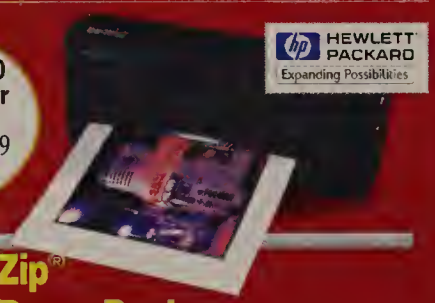

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#42619	266	64MB	1MB	4GB	20x	56K	14.1" Active matrix	7.8lbs.	$3,499	$2,998	$501	$120/mo.
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- 5ppm black; 1.7ppm color
- 600 dpi black; 600 x 300 dpi color
- iMac G3 USB compatible only
- Manufacturer's 1-year warranty

iMac Add-on!

iMac USB Hubs

As low as $79.99! DEH4075

entrega. technologies inc

- Provides 4 additional USB ports for expanding your peripherals.
- iMac color case

iMac Add-on!

DEH4075: 4-port USB iMac hub.....$79.99
DEH4074: 7-port USB iMac hub.....$129.99

Astra 1220u Duo Color Scanner

USB compatible

As low as $129.95!* IN7260

UMAX

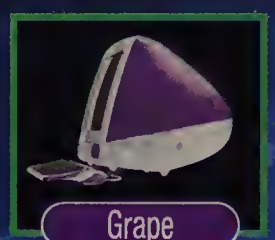
- 600 x 1200 dpi resolution
- 36-bit color images

iMac Add-on!

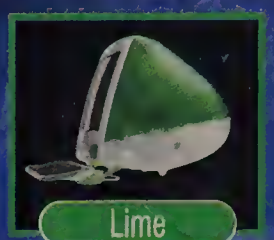
*Price after $20 manufacturer's mail-in rebate. Price before rebate is $149.95. Ask for coupon # AA1203. Offer expires 3/31/99.

NEW iMac/266MHz – available in 5 colors!

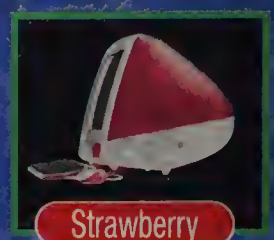
Blueberry CPU1292



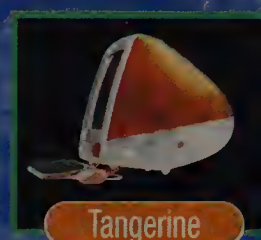
Grape CPU1293



Lime CPU1294



Strawberry CPU1295

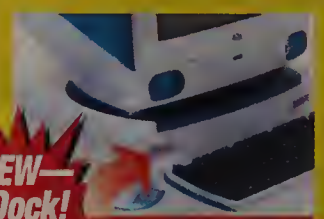


Tangerine CPU1296

iMac 233MHz BLOWOUT!

Now only $899!

Ask for item # CPU1260.



NEW—iDock! Adds Serial and Parallel ports to your iMac!

iMac 233MHz/4.0GB HD/original Bondi Blue
Ask for item # CPU1260 ..Leaselt! for only $32/mo.§ **Only $899**

iMac 233MHz/4.0GB/original Bondi Blue with additional 64MB RAM (not installed)
Ask for item # CPU1261 ....Leaselt! for only $37/mo.§.... only $1068.95

iMac 233MHz/4.0GB/original Bondi Blue with additional 64MB RAM INSTALLED
Ask for item # CPU1262 ....Leaselt! for only $38/mo.§ .... only$1098.90

NEW! iDock, from CompuCable, expands iMac's connectivity. iDock is a swivel base with an Integrated 3-port USB Hub plus 2 Apple Serial/Geo Ports and 1 Parallel Port. With iDock, iMac can be connected to native Mac serial devices and multi-platform parallel devices. iDock is molded in Bondi Blue to match iMac perfectly.

Ask for item # DEH4254 ..... $199.99*

CompuCable iSpeakers for iMac
Ask for item # EX9774 ..... $34.99

§ Leases are only available to business customers with approved credit on product orders where at least one product totals $750, or more. Lease payments are based on a 36-month, Fair Market Value. Call today to see how you can qualify. Lease terms are subject to change. **Savings based on individual products sold separately as of this magazine printing.

iMac GAMES BUNDLE

Get 5 great gaming software titles*

FREE!

when you purchase an Apple iMac G3.

Item # AAA0715

Includes: You Don't Know Jack 2, Marathon, Solitaire Mania, Abuse and Video Casino

Save over $130!**

iMac Add-on!

*Retail packaging shown for promotional purposes only. Shipped in promotional packaging on CD-ROM. Games Bundle must appear on the same invoice as iMac. Offer good while supplies last.

MYST

Broderbund®

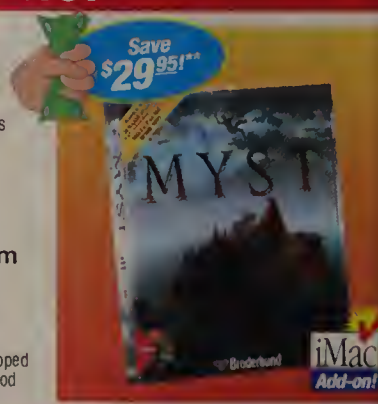
- Challenge your puzzle-solving skills in the Island world that is Myst!

FREE

with any purchase from MacWAREHOUSE*

Item # AAA0742

*$3.95 shipping and handling applies. Shipped in promotional packaging. Hurry! Offer good while supplies last.



Save $29.95!**

iMac Add-on!

PAGE 1 OF 8

EXTENDED KEYBOARD & MOUSE

Only $49.95!* w/iMac purchase

Save over $50!**

macally

Ask for item # BND2908.

- Keyboard features quiet soft touch w/tactile feedback Keyswitch control
- Mouse features an excellent feel, shape, and 275 dpi resolution

*Keyboard/mouse and iMac must appear on the same invoice.

iMac Add-on!

BROTHER HL-1040 LASER PRINTER

Only $379.95! NEW!

USB compatible

Ask for item # BN6035.

- Includes USB connectivity kit for the iMac
- Fast! Prints 10ppm
- 600 x 600 dpi resolution

brother

iMac Add-on!

iMAC ACCESSORY KIT

iMac Add-on!

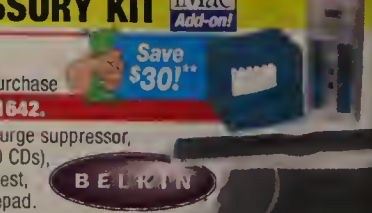
Only $49.99!* w/iMac purchase

Save $30!**

Ask for item # DSP1642.

- Includes: SurgeMaster surge suppressor, iMac CD holder (holds 10 CDs), ErgoPad Premiere wrist rest, ErgoPad Premiere mousepad.

BELKIN



*Accessory Kit and iMac must appear on the same invoice.

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iMac G3 as low as $899!

See below for details.

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for our full selection of great games for the Mac!

Blueberry: item # CPU1292!
Grape: item # CPU1293!
Lime: item # CPU1294!
Strawberry: item # CPU1295!
Tangerine: item # CPU1296!

Only $1199
Leasel! for only $42/mo.*

**Savings based on individual products sold separately as of this magazine printing.

iMac SuperDisk USB Drive

IMATION

Only $149.95!
DRI2793

- 120MB capacity
- USB interface for easy plug and play, hot-swappable storage
- Reads and writes 3.5" diskettes

iMac Add-on!

iMac LS-120MB SuperDisks (5-pack), only $64.99. Ask for item # ME7927.

Farallon EtherMac iMac iPrint Adapter

Only $109.99!
DEP1734

- Connects your iMac to LocalTalk printers and other Macintosh computers
- Easy plug-and play installation

iMac Add-on!

Agfa 1212u Scanner

$30 rebate!

Only $99.95!*
after $30 rebate* with the purchase of an iMac or Apple Power Mac G3.

- Translucent blue! • 36-bit color

iMac Add-on!

*Price after MacWAREHOUSE $30 mail-in rebate. Price before rebate is $129.95. Offer expires 3/31/99. Rebate coupon available at www.warehouse.com/rebate/snapscan, or ask for coupon # AA1429.

Stuffit Deluxe 5.0

Only $29.95!*
w/iMac purchase
AAP0580

Save $50!**

- Offers 20% better compression than previous versions

iMac Add-on!

*Apple iMac G3 and Stuffit Deluxe must appear on the same invoice. Price for Stuffit Deluxe without iMac purchase is $79.95. Ask for item # AAP0580. While supplies last.

DataViz MacLinkPlus Deluxe v.10.0

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w/iMac purchase
AAP0545

Save $40!**

- Open, use, and convert files for the latest applications.

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iMac FAMILY COLLECTION

4 great learning titles the whole family can enjoy for only
$49.95!*
when you purchase an Apple iMac G3.
Item # AAP0562

Includes: Grolier Encyclopedia 98, Mavis Beacon Teaches Typing 5.0, PrintMaster Gold Suite, and Math Blaster Jr.

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iMac GAMES BUNDLE

Get 4 great gaming software titles to enjoy for only
$39.95!*
when you purchase an Apple iMac G3.
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Includes: 3D Ultra Pinball-Lost Continent, Civilization II, Myth, and F/A-18 Hornet 3.0

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Only $99.99! DMD4188

USB compatible

- 56,000 bps modem delivers data throughput up to 230,400 bps
- Mfr's 5-year limited warranty

BEST DATA

USB 56K V.90 Speakerphone: Item # DMD4187. . . . . ONLY $119.99!

100MB Zip USB Drive

Only $149.95! DR9464

New!

- Translucent ice blue
- USB compatible, works with your iMac!

USB compatible

Iomega 100MB Zip Disks

Only $9.99! each, in 10-pack

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Olympus D-620L Camera

Only $1199.95! IN7515

- 1280 x 1024 ppi resolution
- 3X zoom with TTL SLR viewfinder

8MB SmartMedia card included!

OLYMPUS

Accessories Kit: Includes leather camera case, 8MB SmartMedia Card, rechargeable batteries and recharger, AC adapter and software. Item # AC23606. . . . . ONLY $199.95!

16MB SmartMedia Cards

Only $79.95! MY10247

- Digital film for digital cameras
- Compatible with most new digital cameras

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NEW! Apple Power Mac G3s

Design, Features, and Speed You've Never Seen Before!

As low as $1599!

APPLE 17" MONITOR Only $499! Item # MON0786

ALL NEW POWER MAC G3s INCLUDE:

- Built-in ATI Rage 128 graphics card with 16MB of SDRAM graphics memory
- NEW! Two ultra-fast FireWire ports — much faster than SCSI ports, and together they handle up to 63 devices
- Two USB ports — handle up to 127 USB peripherals
- 100MHz System BUS • One ADB port
- Built-in 10/100Base-T Ethernet connector

300MHz PowerPC G3/64MB SDRAM/6.0GB hard drive/24x CD-ROM drive/512K cache CPU1282 . . . Leaseit! for $56/mo.§ $1599

G3 PowerPC

See the complete line of G3s at www.apple.warehouse.com

Monitors sold separately.

NEW! POWER MAC G3/350MHZ MINITOWER

- 350MHz PowerPC G3 processor
- 64MB SDRAM (1.0GB max.)
- 6.0GB hard drive
- DVD-ROM drive (5X DVD/32X CD)
- 1MB backside level 2 cache

Only $1999! Item # CPU1283

Leaseit! for only $69/mo.§

DVD ROM

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- 350MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 12.0GB hard drive
- 24X CD-ROM • Zip drive
- 1MB backside level 2 cache

Only $2499! Item # CPU1284

Leaseit! for only $87/mo.§

NEW! POWER MAC G3/400MHZ MINITOWER

- 400MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 9.0GB Ultra 2 SCSI hard drive
- 24X CD-ROM drive
- 1MB backside level 2 cache

Only $2999! Item # CPU1285

Leaseit! for only $104/mo.§

NEW! MACINTOSH SERVER G3s

- 350MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 9.0GB Ultra 2 SCSI hard drive
- 24X CD-ROM • AppleShare 6.1
- 1MB backside level 2 cache

Only $3299! Item # CPU1286

Leaseit! for only $114/mo.§

400MHz PowerPC G3 Server/256MB SDRAM/Two 9.0GB Ultra 2 SCSI hard drives/ 24X CD/1MB backside L2 cache CPU1287 . . . Leaseit! for only $173/mo.§ . . . $4999

- Our sales staff is ready to take your order 24 hours a day, 7 days a week. We accept the following major credit cards: Visa, MasterCard, Oiscover Card/NOVUS, AmEx. Your credit card will not be charged until each item is shipped (no surcharge). CT, IL, NJ, OH, VA and WA residents add applicable sales tax.
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- All items we sell come with the MacWAREHOUSE 30-Oay Guarantee Against Oefects. Call our Customer Service Oepartment at 1-800-925-6227 for a Return Merchandise Authorization (RMA) number within 30 days of the original invoice date. Defective software will be replaced immediately upon receipt of the defective product. Defective hardware will be replaced or repaired at our discrebon, except for products from Apple 1-800-SOS-APPL (1-800-767-2775), or Tektronix (1-800-835-6100). These manufacturers must be contacted directly, and will repair or replace products at their sole discretion. Should you return hardware to MacWAREHOUSE from Apple or Tektronix, you will be assessed a 15% restocking fee which will be charged to your account. All returns are subject to the following: 1. All products must be returned in original packaging. 2. Shipping and handling charges are not refundable. 3. Software and consumables are not refundable unless returned unopened in original packaging with documentation. 4. Custom orders and cables are not refundable. 5. Products designated as "all sales final" are not refundable.

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Power Mac G3s as low as $1599!

Power Mac G3/300MHz Minitower. See left page for details.

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Apple PowerBook Prices Slashed!

PRICE SLASHED $300!

Now only $2199!

WAS ~~$2499~~. ASK FOR ITEM # CPU1238.
Leaseit! for $76/mo.§

- 233MHz PowerPC G3 processor • 32MB SDRAM
- 2.0GB hard drive • 20X CD-ROM drive
- 56K modem • 10Base-T Ethernet
- 512K backside level 2 cache
- 14.1" active-matrix color display

32MB G3 MEMORY UPGRADE for PowerBook only $159.95! Ask for item # CHP9820.

APPLE POWERBOOK G3/266MHZ

- 266MHz PowerPC G3 processor
- 64MB SDRAM • 4.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB backside level 2 cache
- 14.1" active-matrix color display

PRICE SLASHED $300!

Now only $2699!
was ~~$2999~~
Item # CPU1239
Leaseit! for only $94/mo.§

APPLE POWERBOOK G3/300MHZ

- 300MHz PowerPC G3 processor
- 64MB SDRAM • 8.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB backside level 2 cache
- 14.1" active-matrix color display

PRICE SLASHED $1000!

Now only $2999!
was ~~$3999~~
Item # CPU1259
Leaseit! for only $104/mo.§

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- 300MHz PowerPC G3 processor
- 64MB SDRAM • 8.0GB hard drive
- DVD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB backside level 2 cache
- 14.1" active-matrix color display

PRICE SLASHED $900!

Now only $3499!
was ~~$4399~~
Item # CPU1240
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NEW! VST ZIP 100 DRIVE

- For PowerBook G3 Series
- Bootable (Mac OS 8 boot disk provided)

Internal as low as $199.95!*
Item # AAP0552
Iomega 100MB Zip disks 6-pack, only $79.95. Item # MED0394.

Apple PowerBook G3 Floppy Drive Only $109.95! Item # DRI2661.

*With the purchase of a 6-pack of Iomega Zip disks. Must appear on the same invoice.

PowerBook G3 Accessories

Zip Drive MEGA Kit!

All for only $249.95!
Item # BND3042

- Zip Drive (standard Zip) • Zip Wallet
- Ten Multi-color 100MB Disks†
- Carrying Case Zip Caddy
- Disk Drive TuneUp

† Zip Tools Utility software included on CD-ROM.

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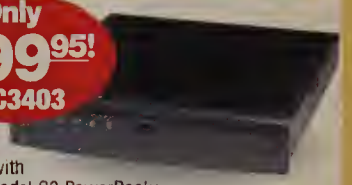
Only $239.95!
DRI2765

- Easily connect your PowerBook to your desktop peripherals

PowerBook sold separately.

VST PowerBook G3 Battery

Only $199.95!
ACC3403



- Works with 1998 model G3 PowerBooks
- Lithium-ion battery

56K V.90 FaxModem PC Card

Only $159.99!
DMD3824

- K56 Flex and V.90 technology cuts Web page downloading time almost in half!

PowerBook Memory Upgrades

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- SDRAM

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- 36-bit color images
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- SCSI interface

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New low price!

- Includes MacPac translation software
- Flash upgradable memory
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Save $40!**

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Apple iMac G3 $799!*

Equipped with the new PowerPC G3! Furiously-Fast Processor

Authorized Catalog Reseller

Only $799!*

Ask for item # RCPU1260.

- 233MHz PowerPC G3 processor
- 32MB RAM (256MB max.)
- 4.0GB hard drive
- 24X CD-ROM drive
- 56K modem • 15" color monitor

Factory Reconditioned

APPLE POWER MAC G3 DESKTOP

only $1449!*

Ask for item # RCPU1204.

- 266MHz PowerPC G3 processor
- 32MB RAM (768MB max.)
- 4.0GB hard drive
- 24X CD-ROM drive
- 10Base-T Ethernet

Factory Reconditioned

Monitors sold separately.

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*Reconditioned system. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

Many other reconditioned Power Mac G3 models available. Call for details.

APPLE POWERBOOK 180C

- 33MHz 68030 processor • 14MB RAM
- 160MB hard drive • 14.4Kbps modem
- 8.4" active-matrix color display

Only $399!* Item # RCPU1273

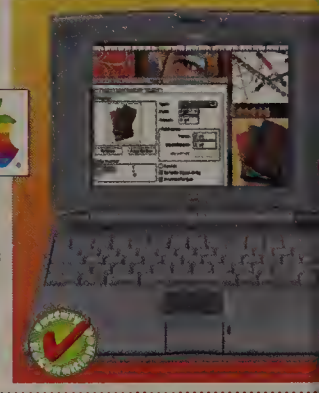
RCPU1195: PowerBook 180: 33MHz 68030 processor, 8MB RAM, 120MB HD, 14.4Kbps modem, 10" grayscale active-matrix display, ClarisWorks 3.0: .....only $499*

*Reconditioned system. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

APPLE POWERBOOK 520C

- 25MHz 68LC040 processor • 20MB RAM
- 240MB hard drive • 19.2Kbps modem
- 9.5" passive-matrix color display
- ClarisWorks 3.0

Only $699!* Item # RCPU1107



RCPU1196: PowerBook 540c: 33MHz 68LC040 processor, 20MB RAM, 240MB HD, 19.2Kbps modem, 9.5" active-matrix color display, ClarisWorks 3.0: .....only $799*

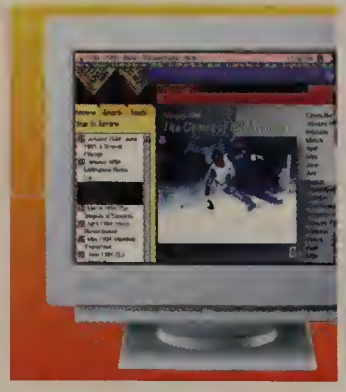
*Reconditioned system. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

HITACHI 17" MONITOR

HITACHI

- 17" monitor (15.9" viewable)
- Resolutions up to 1152 x 870 @ 75Hz
- .28mm dot pitch
- Manufacturer's 3-year warranty

Only $399.95! Item # MON0548



SONY 420GS 19" MONITOR

SONY

- 19" monitor (18" viewable)
- 1600 x 1200 resolution @ 75Hz
- Manufacturer's 3-year warranty

Only $639.95! Item # MON0762

Jaz 2.0GB Cartridges

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Ask for item # MED0508.

iomega

Quantity:	1-2	3-4	5+
Price:	$124.95 ea.	$109.95 ea.	$99.95 ea.

APC 500VA UPS

Only $149.99!

Ask for item # DUP2097.

APC

- Manufacturer's 2-year warranty
- Full-time surge protection and instantaneous battery back-up to protect your equipment against brownouts, overvoltages, and blackouts.

Power Mac G3 32MB Memory Upgrade

Only $99.95!

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- 32MB SDRAM DIMM
- Call for full selection

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FREE Software** with your Mac OS 8.5 purchase!

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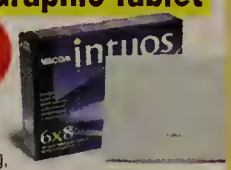

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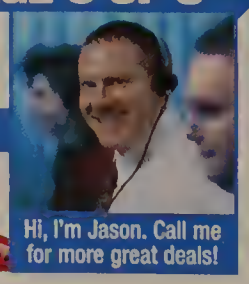

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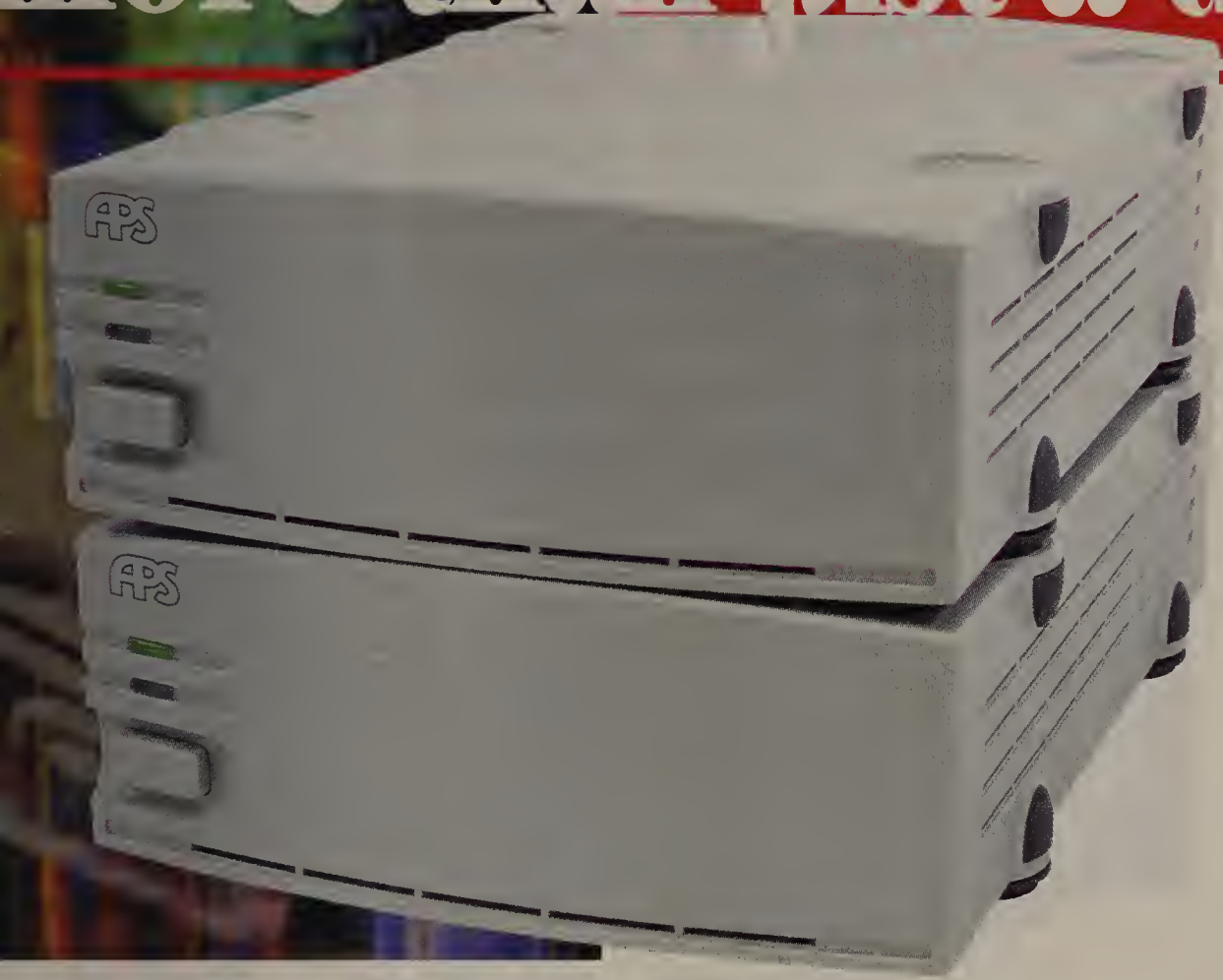

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APS Q 3000	Quantum Fireball ST, 3118M8, 5400 rpm	219.95	229.95	289.95
APS Q 4000	Quantum Fireball ST, 4136MB, 5400 rpm	269.95	279.9	$339.95
APS ST 4000	Seagate Medalist Pro, 4520M8, 7200 rpm	229.95	239.95	299.95
APS I 4500	IBM Ultrastar, 4357MB, 7200 rpm	259.95	269.95	329.95
APS Q 6400	Quantum Fireball ST, 6236MB, 5400 rpm	359.95	369.95	429.95
APS ST 6000	Seagate Medalist Pro, 6580MB, 7200 rpm	369.95	379.95	439.95
APS Q 8000	Quantum Fireball SE, 8191MB, 5400 rpm	429.95	439.95	499.95
APS I 9000	IBM Ultrastar 9ES, 8715MB, 7200 rpm	459.95	469.95	529.95
APS ST 9000	Seagate Medalist Pro, 9140MB, 7200 rpm	399.95	409.95	469.95
APS I 18000	I8M Ultrastar, 17501MB, 7200 rpm	799.95	809.95	869.95
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APS Q 4500 U2W	Quantum Viking II, 4240MB, 7200 rpm	$299.95	$369.95
APS Q 9000 U2W	Quantum Viking II, 8682MB, 7200 rpm	519.95	589.95
APS ST 9000 U2W	Seagate Barracuda, 86B3MB, 7200 rpm	509.95	579.95
APS ST 9100 U2W	Seagate Cheetah, 8681M8, 10,000 rpm	729.95	799.95
APS ST 18100 U2W	Seagate Cheetah, 18201M8, 10,000 rpm	1,149.95	1,219.95

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APS I 4500 W	IBM Ultrastar 9GS, 4357MB, 7200 rpm	279.95	289.95	369.95
APS Q 4500 W	Quantum Viking II, 4345MB, 7200 rpm	2B9.95	299.95	379.95
APS ST 6000 W	Seagate Medalist Pro, 6520MB, 7200 rpm	379.95	3B9.95	469.95
APS I 9000 W	IBM Ultrastar 9ES, B715MB, 7200 rpm	469.95	479.95	559.95
APS Q 9000 W	Quantum Viking II, 9000MB, 7200 rpm	509.95	519.95	599.95
APS ST 9000 W	Seagate Barracuda, 8683MB, 7200 rpm	469.95	479.95	549.95
APS I 9100 W	IBM Ultrastar 9ZX, 8705M8, 10,000 rpm	549.95	559.95	639.95
APS I 18000 W	IBM Ultrastar 1BXP, 17501MB, 7200 rpm	809.95	819.95	899.95
APS Q 18000 W	Quantum Atlas III, 18201MB, 7200 rpm	809.95	819.95	$99.95
APS ST 18000 W	Seagate Barracuda, 18000MB, 7200 rpm	799.95	809.95	889.95
APS I 36000 W	Seagate Barracuda, 18000M8, 7200 rpm	799.95	1,689.95	1,769.95

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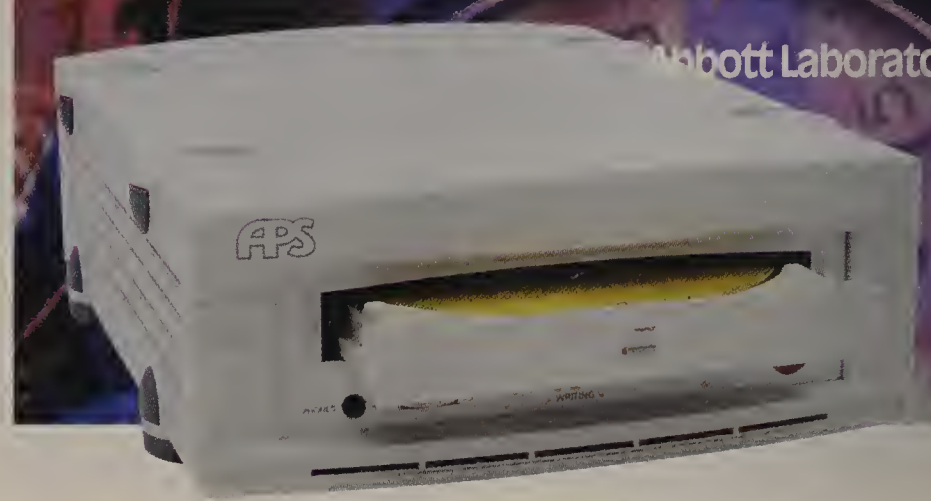

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- Excellent value for burning CDs for personal or small business uses
- Includes PC/Mac recording software

The APS CD-R 4x8 gives you excellent price/performance for CD production at home. Powered tray-loading eliminates inconvenient caddies.

As low as $269.95
External Configuration

APS CD-ROM/R/RW DRIVES & CD CHANGERS

Model	Description	External
APS CD40	40X CD-ROM in Slimline Case	149
APS 5-CD Changer	Nakamichi 5 Disc/16X CD-ROM, Pro Enclosure	259.95
APS CD-R 4X8P	4X record/8X read CD-R in SR 2000 or APS Pro Enclosure	269.95
APS CD-R 8X20	8X record/20X read CD-R in Pro Enclosure	489
APS CD-R 4X12	4X record/12X read CD-R in Pro Enclosure	329
APS CD-RW	2X record/2X rewrite/6X read CD-RW in Pro Enclosure	319.95
APS CD-RW	4X record/4X rewrite/16X read CD-RW in Pro Enclosure	399
APS CD-R Media 10pk	$199.95	
APS CD-RW Media 5pk	43.95	

APS CD-R 8x20

- Super-speedy CD burner for creative professionals
- 8X record/20X read mechanism
- Includes full-featured CD recording software for Mac and PC

Hit the afterburner! The CD-R 8x20 is our fastest CD recorder ever. The blazing 8x20 mechanism cranks out your CDs in record time, so you spend less time burning and more time creating. If your payday depends on producing CDs, punch in with the APS CD-R 8x20.

As low as $489.95
External Configuration

Order from our special Online Catalog at http://www.apstech.com/mwspecial/

APS CD-RW 4x4x16

- 167% faster reads and 100% faster rewrites than CD-RW Pro 4x2x6
- The ultimate rewritable CD drive for professional environments

APS proudly introduces our fastest rewritable CD drive ever. The 4x4x16 is fast enough to handle all CD functions, including 16X reads for power users. This tray-loading drive offers a huge 2MB buffer to prevent underruns and failed recordings. The 4x4x16 is Flash ROM-upgradeable for future formats and operating systems. Plus, you get full-featured, professional-level recording software for both Mac and PC. No matter if you develop demanding multimedia or software, produce music or graphic designs, the CD-RW 4x4x16 is the only CD drive you need.

As low as $399.95
External Configuration

APS CD-RW 2x2x6

- Record, read, and edit any kind of data on CD-RW media
- Also records on inexpensive, play-anywhere CD-R discs

Whether you're producing a multimedia title or just want to send your mother a QuickTime movie of your honeymoon, this versatile drive is the inexpensive solution for writing and reusing CD-RW discs. The APS CD-RW 2x2x6 also writes to cost-effective CD-R discs. It can even play your gaming CD-ROMs and music CDs. This drive provides 2X recording, 2X rewriting, and 6X playback. The APS CD-RW drive includes all the Mac and PC recording software you need to master your CDs. Ships in the APS Pro enclosure.

As low as $319.95
External Configuration

distribute your projects faster

APS HyperDAT®

- Up to 8GB (compressed) of storage on one 120m DDS-2/DAT tape
- Excellent desktop/workstation backup

As low as $549.95
Internal Configuration

Backup Special
APS DLT 40
$1,999.95

Surf on over to www.apstech.com for information on the APS DLT 40

APS HyperDAT® III

- 12GB native backup for high-end workstations, entry-level networks
- New, more reliable DDS-3 technology

The APS HyperDAT III provides a cost-effective solution to the backup storage needs of data-intensive systems. Using DDS-3 technology, the APS HyperDAT III delivers a narrower track width than DDS-2 for a much higher density and more data storage. The increased density combines with Sony's precise tape control system to deliver a sustained data transfer rate of 1MB per second.

As low as $979.95
Internal Configuration

APS HyperQIC®

- Up to 8GB per TR-4 tape with new NS8 hardware compression
- The worldwide standard in desktop backup is now better than ever

Our HyperQIC drive uses Travan-4 tape cartridges to deliver up to 4GB on a single tape without compression! (8GB with 2:1 data compression.) The APS HyperQIC is read/write compatible with QIC3095 and QIC3080 cartridges. This drive can also read QIC80, QIC3010, and QIC3020 tape cartridges. The APS HyperQIC includes backup software and a two-year limited warranty.

(While the APS HyperQIC will accept all of the media listed, compatibility issues with the software used to record those tapes may make it impossible for you to read those tapes with your current backup software.)

As low as $299.95
Internal Configuration

APS HyperQIC® II

- Brand-new Travan-5/NS20 technology – safeguard up to 20GB per cartridge
- Hardware data compression for faster, more efficient backups

Next-generation Travan-5 cartridges give you up to 20GB compressed (10GB native) capacity. That's two and a half times more storage than previous Travan media. And new Travan NS technology adds hardware compression for more efficient data compression and faster transfers. If you need reliable, fast backup for a desktop or workstation, move up to the APS HyperQIC II. Includes backup software for Macintosh (Retrospect or NovaBack) or Windows (NovaBack and Cheyenne).

As low as $499.95
Internal Configuration

APS HyperDAT® Pro

- Backup and restore speeds as high as 50MB per minute
- Up to 8GB of storage per 120m DAT/DDS-2 tape cartridge

Backup in less time! The APS HyperDAT Pro is perfect for high-end desktop backups. With standard 120m DDS-2 tapes the APS HyperDAT Pro can backup up to 8GB of data (assuming 2:1 hardware compression). The HyperDAT Pro can also use economical 60m and 90m tapes. Comes with backup software and includes a two-year warranty.

As low as $699.95
Internal Configuration

APS TAPE BACKUP SYSTEMS

Model	Description	Internal	External
APS HyperQIC®	Travan-4/NS8/QIC	$299.95	$349.95
APS HyperQIC® II	Travan-5/NS20/QIC	499.95	549.95
APS HyperDAT®	DDS-2/DAT (4-8GB)	549.95	599.95
APS HyperDAT® Pro	Quad-speed DDS-2/DAT (4-8GB)	699.95	749.95
APS HyperDAT® III	DDS-3/DAT (12-24GB)	979.95	1,029.95
APS HyperDAT® IV	DDS-4/DAT (20-40GB)	1,299.95	1,349.95
APS Mini Library	4mm DDS-2 AutoLoader (32-64GB)	N/A	2,399.95
APS DLT40	DLT 4000 (20-40GB)	N/A	1,999.95
APS DLT70	DLT 7000 (35-70GB)	N/A	4,999.95
APS AIT Plus	8mm Advanced Intelligent Tape (35-70GB)	N/A	2,199.95
APS AIT Autoloader	8mm AIT, 200GB on 4 tapes	N/A	4,799.95

Drives on these pages are covered by the APS 30-Day Money-Back Guarantee.

APS AIT Plus

- Brand-new drive safeguards up to 35GB native on AIT Plus tape (70GB compressed)
- Super-fast backup speeds for mid-range and application server backup, even video storage

If you thought DLT was your only choice for mammoth backups, think again. The new AIT Plus overtakes even the DLT 70 in capacity and transfer speeds. Self-cleaning technology makes maintenance virtually effortless. Exclusive reliability features and exceedingly-low cost of ownership make this an IT/IS dream come true.

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APS Jaz II

- A staggering two gigabytes of removable storage
- Perfect for multimedia producers, graphic designers and service bureaus

Introducing the next big thing: the APS Jaz II. Based on revolutionary Jaz technology, this drive offers a whopping two gigabytes of removable storage. And the new Jaz II is even faster, coming closer still to hard drive access and read/write speeds. This drive will also read and write to your current 1GB Jaz disks, so you don't have to worry about wasted investment. For digital video, multimedia and publishing businesses, the APS Jaz II is perfect for carrying huge files and quickly accessing client data. It's time to move up to the APS Jaz II. Includes one 2GB Jaz disk.

As low as $399.95
External Configuration

Sony HiFD

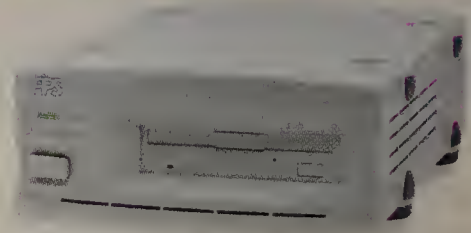
- Excellent replacement/upgrade to your old floppy drive
- 200MB storage per HiFD diskette, plus it uses all your 1.4MB floppies
- Parallel interface for quick, easy installation

Have you outgrown your floppy drive? The new Sony HiFD gives you 200MB per diskette, and it also reads and writes to your collection of 1.4MB floppies. The HiFD promises to be more reliable than some other removable media technologies. And the parallel interface means you can be up and running in just moments. Get the floppy of the future today with the Sony HiFD.

As low as $199.95
External Enclosure

APS 640 MO

- Read/write compatible with 640, 230 and 128 MO
- New Direct OverWrite technology cuts rewrite time in half with LIMDOW MO disks



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APS 640MO Media 5pk. $129.95

As low as $349.95
External Configuration

Sony Multiscan CPD-L150 15" LCD Display

- Reclaim your deskspace – only 6.5" deep
- Sharp 1024 x 768 at 85Hz reduces eyestrain
- Perfect for cramped studios and content creation cubicles

Sometimes, it's good to be shallow. The CPD-L150 takes up so little valuable deskspace. But it packs a sharp, vivid picture into its convenient LCD display. Digital FlexRes technology gives you a crisp full-screen image no matter what resolution you choose. The high refresh rates reduce eye problems associated with computer work, including eyestrain, blurred vision and headaches. On-screen display and lock-out features let you set and keep the perfect settings for you. So reclaim your deskspace with the Sony Multiscan CPD-L150. Just try not to use the extra space for another in-box.

$1,499.95

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for more multimedia tools

Sony CPJ-D500 Portable Projector

- Lightweight projector for heavyweight presentations
- 8.3lbs. and sets up in seconds

The CJP-D500 helps you hit your audience right between the eyes, but takes it easy on your back. Fully VGA-compatible, the CPJ-D500 gives you 24-bit color output at 640 x 480 resolution from a bright, long-lasting 80-watt metal halide bulb. Includes an RCA video input jack, microphone input jacks and stereo headphone output jack to drive external speakers. Accepts PC, Macintosh, NTSC and PAL input. Includes RGB and power cables, presentation software and carrying case.

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level tools for content creators

APS Hardware RAID Systems

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- RAID 0, RAID 1, RAID 0 +1, RAID 4, RAID 5
- Hot-swappable redundancy in drives, power supplies and cooling fans
- Perfect for centralized storage of digital images, graphic design, digital video editing

There is no better way to store, work with and protect your files and data than with the APS Hardware RAID System. With your choice of RAID levels, you can choose from maximum speed (striping), maximum data availability (mirroring) or a combination of both. This advanced RAID system offers powerful features like fault detection, background reconstruction, five hot-swappable hard drives, and an Ultra Wide SCSI interface. If you work in CAD/CAM, 3D modeling, animation, multimedia, non-linear digital video editing or high-end design and imaging for print, there is no substitute for the sheer power of the APS Hardware RAID.

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Five 10,000 rpm Cheetah drives, 42.4GB capacity

Sony DCR-TRV9 Digital Video Camcorder

- 1/4" 680K pixel CCD for excellent DV picture quality
- 15X optical/180X precision digital zoom lens for field work
- iLINK/IEEE 1394 interface for totally digital transfers – no loss of quality

The DCR-TRV9 gives you professional quality and features at a budget-conscious price. This DV camcorder gives you smooth, colorful video that you can watch on your TV, add to your Web site or use in your presentation. The IEEE 1394 interface means there is no conversion from digital to analog formats, preserving the image and sound quality. The LP mode lets you record 90 minutes of digital video on one 60-minute DV cassette. You can even capture 16-bit stereo audio for a complete multimedia experience. So explore the world of digital video for business and pleasure with the DCR-TRV9.

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Advanced tools for digital visionaries

Sony MVC-FD81/91 Digital Mavica Cameras

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- Store and transfer content on standard floppy disks
- Add images and multimedia to presentations, Web sites, e-mail

MVC-FD91

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MVC-FD81

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93755	Princeton 90 Ultra 19"/18" Monitor	$449.98
03581	ViewSonic PS790 19"/18" .25 SM 1600	$599.98
101417	Sony Multiscan 220GS 17" Monitor	$439.98
77049	AppleVision 720 17" Qisplay	$499.98
75956	Qptiquest Q51 15" Monitor	$169.98
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46794	Sony Multiscan 500PS 21" Monitor	$1,099.00
46793	Sony Multiscan 400PS 19" Monitor	$729.98
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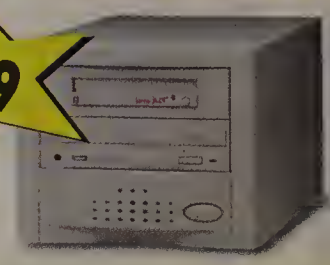

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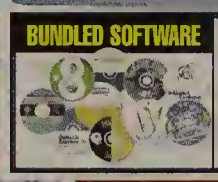

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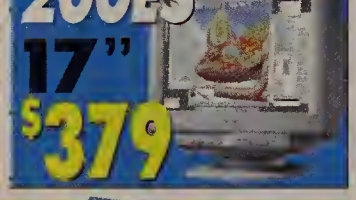

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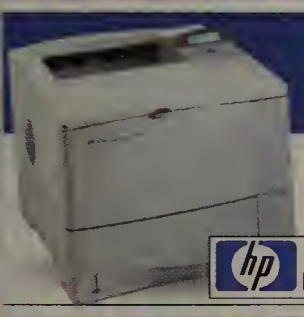

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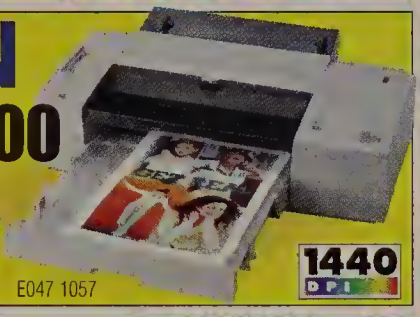

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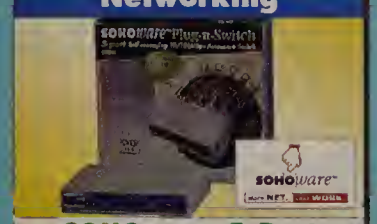

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30 GB	DLT 2000XT	150 MB/Min.	1495
40 GB	DLT 4000	180 MB/Min.	1979
70 GB	DLT 7000	600 MB/Min.	3989
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200 GB	DLT 4500	180 MB/Min.	3795
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MAXPOWER G3 366MHZ	1024K/183 7300-9600	$1269
MAXPOWER G3 400MHZ	1024K/200 G3	$1519

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Zip Plus Drive one cartridge	---	$175
Jaz 1GB Drive one cartridge	$279	$295
Jaz 2GB Drive no cartridge	$359	$349

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Quantum ATLAS III

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DESKSTAR GPX

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MW EDITORS' CHOICE March '98

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10000 RPM 1024K BUFFER 5.9MS SEEK

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18.2GB Wide $759 (ST118273W) External: $849
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6.5GB NARROW/WIDE $289 (ST36530N/W) External: $349 Wide Ext.: $379
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CHEETAH PowerRAIDs

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8455MB	5400rpm	512K	FB38400S	3yr	$349	$409
9100MB	7200rpm	1024K	XP309100S	5yr	$429	$489
18200MB	7200rpm	1024K	XP318200S	5yr	$749	$809

ULTRA WIDE SCSI

4550MB	7200rpm	512K	VK304550W	5yr	$249	$339
9100MB	7200rpm	512K	VK309100W	5yr	$389	$479

ULTRA 2 SCSI

4550MB	7200rpm	512K	VK304550LW	5yr	$249	$349
9100MB	7200rpm	512K	VK309100LW	5yr	$389	$489
9100MB	7200rpm	1024K	XP309100LW	5yr	$429	$529
18200MB	7200rpm	1024K	XP318200LW	5yr	$749	$849

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Capacity for the Extraordinary

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- ✓ 5 FREE disks
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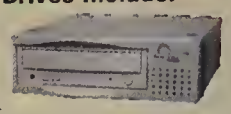

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4x8 Panasonic mechanism, tray load, 1MB buffer	**$259**	**$319**
4x12 Teac mechanism, tray load, 1MB buffer	$269	$329
4x12 Plextor mechanism, caddy/tray load, 2MB buffer	$379	$439
8x20 tray load, 2MB buffer	$389	$449
8x20 Plextor mechanism, tray load, 4MB buffer	$509	$569

PRICE BREAKTHRU

Stomper CD label kit only $35 with CD-R drive!

CD REWRITABLE Includes 5 Free ReWritable Disks!		
4x4x16 Yamaha mechanism, tray load, 2MB buffer	$389	$449

Fargo Signature CD Printer $999	CD Duplicators Call for price.	CD Stomper label kit $49	Toast retail package $89	100 CDR-74 w/drive $120	50 CD-RW w/ drive $289

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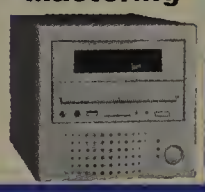

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DLT MEDIA SALE

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(DLTCLEAN)
1-4 $41 5-9 $40
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• SCSI HARD DRIVES •

Seagate

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6.5GB	7200rpm	512K	ST36530N	3yr	$305	$365
9.1GB	7200rpm	512K	ST39140N	3yr	$380	$440
9.1GB	7200rpm	1024K	ST39173N	5yr	$405	$465
18.2GB	7200rpm	1024K	ST118273N	5yr	$765	$825
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4.5GB	7200rpm	512K	ST34573W	5yr	$369	$459
6.5GB	7200rpm	512K	ST36530W	3yr	$305	$395
9.1GB	7200rpm	512K	ST39140W	3yr	$380	$470
9.1GB	7200rpm	1024K	ST39173W	5yr	$405	$495
18.2GB	7200rpm	1024K	ST118273W	5yr	$765	$855
ULTRA 2 SCSI						
4.5GB	7200rpm	1024K	ST34573LW	5yr	$369	$479
4.5GB	10,000rpm	1024K	ST34502LW	5yr	$529	$639
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9.1GB	10,000rpm	1024K	ST39173LW	5yr	$405	$515
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IBM

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18.2GB	7200rpm	1024K	IDGHS18Z	5yr	$789	$849
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ULTRA WIDE SCSI						
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9.1GB	7200rpm	512K	IBM39130W	5yr	$449	$539
18.2GB 1" High		2MB	IBM318350W	5yr	$959	$1049
ULTRA-2 SCSI						
9.1GB	7200rpm	512K	IBM39130U2	5yr	$459	$569
9.1GB	10020rpm	4096K	IDRVS9U2	5yr	$629	$739
18.2GB	7200rpm	1024K	IDGHS18U2	5yr	$799	$909
18.2GB	10020rpm	4096K	IDRVS18U2	5yr	$1069	$1179
36.4GB	7200rpm	4096K	IDRHS36U2	5yr	$1599	$1709

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• CD ROM DRIVES •

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32X - 512K buffer	Plextor	PX32TSM/XM	$119	$179
36X - Slot load	Pioneer	DRU706M/XM	$89	$149
40X - tray load	Toshiba	XM6401BM/XM	$99	$159

• MISCELLANEOUS •

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JAZ Media Sale 1GB qty 2-9 / 10+ $79 / $77
2GB qty 2-9 / 10+ $87 / $85

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PCI FireWire + Wide SCSI AHA8945 $559
PCI Ultra 2 A2940MU2W $399

ATTO Controllers
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Complete kit for Mac G3 computers DVDMAC **$199**

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2.6GB media 2-4/5-9/10+ $40/36/34 5.2GB media 2-4/5-9/10+ $95/91/89

Sony Tape Drives with Retrospect
Turbo (up to 90MB/min) 4-8GB external kit SDT7000XM **$699**
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120Meter Tapes 2-4/5-9/10+ $17/14/12 125Meter Tapes 2-4/5-9/10+ $31/28/26

CD-RW PRICE DROP! • CDR MEDIA •

Nobody beats MegaHaus for CD Recordable Media prices! We will not be undersold. If by chance you do find a lower price, call us.

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5 Pack	$21/$19	$59/$55	$28/$25
20 Pack	$42/$39	$149/$145	$65/$62
50 Pack	$93/$89	$359/$349	$139/$135
100 Pack	$159/$149	$689/$679	$239/$229
Budget 5 Pack	$19/$17	$33/$29	$24/$21
Budget 20 Pack	$36/$33	$109/$105	$55/$52
Budget 50 Pack	$74/$70	$249/$239	$119/$109
Budget 100 Pack	$139/$120	$449/$439	$179/$169

CDR74 is recordable, CDR74W is rewritable, CDR74P is printable. $ 1s alone/with CDR purchase. 8X certified, & Platinum now available.

• IDE HARD DRIVES •

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3.2GB	Quantum	5400rpm	FB303200A	3yr	$125
4.3GB	WD	5400rpm	AC14300	3yr	$139
6.4GB	Quantum	5400rpm	FB306400A	3yr	$149
7.6GB	Quantum	5400rpm	FB307600A	3yr	$173
8.6GB	Seagate	5400rpm	ST38641A	3yr	$175
10.1GB	IBM	7200rpm	IBM10GXP	3yr	$259
10.2GB	Seagate	5400rpm	ST310240A	3yr	$200
12.7GB	Quantum	5400rpm	FB312700A	3yr	$229
13.0GB	WD	5400rpm	WDAC31300	3yr	$264
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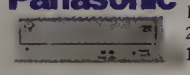

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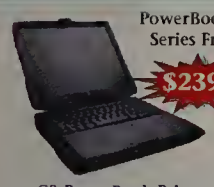

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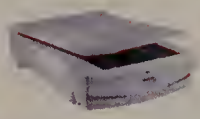

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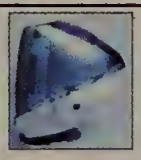

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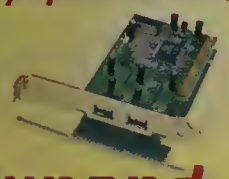

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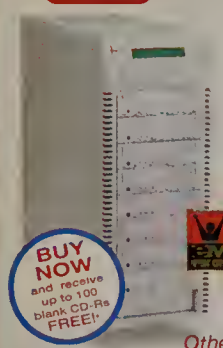

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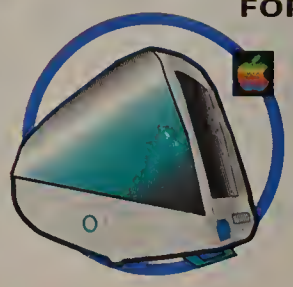

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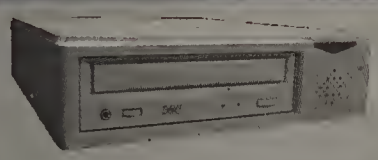

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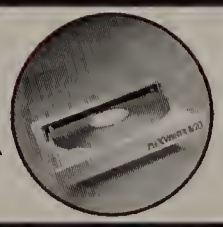

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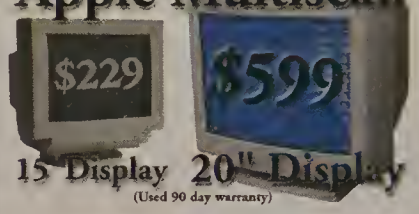

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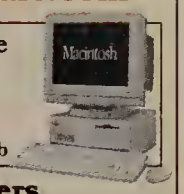

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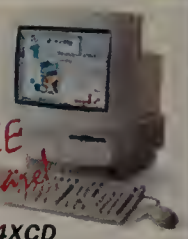

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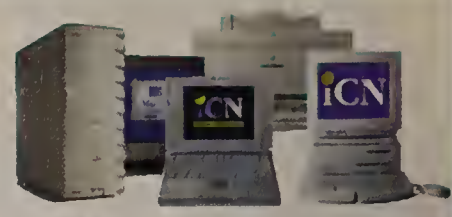

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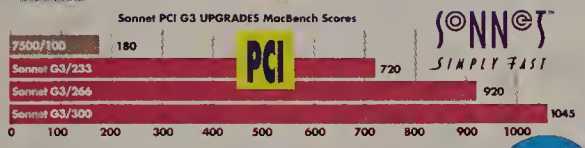

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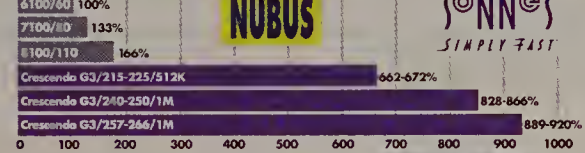

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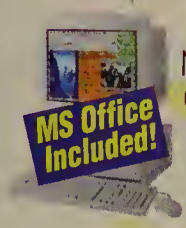

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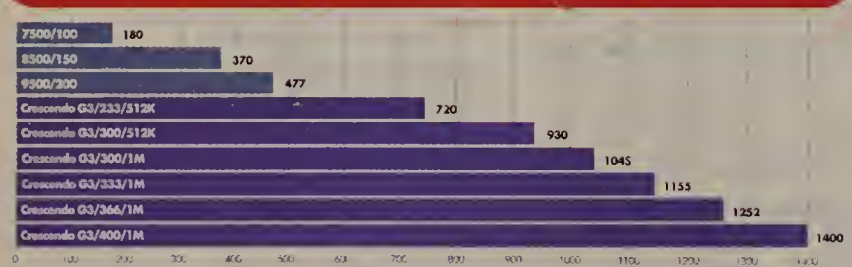

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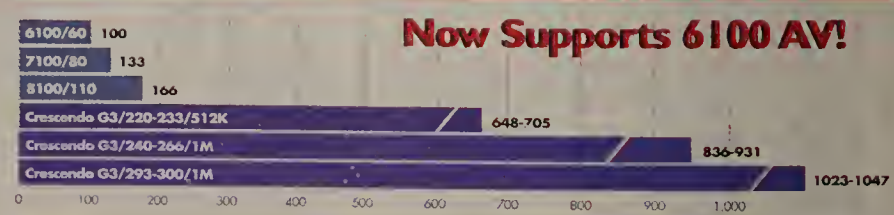

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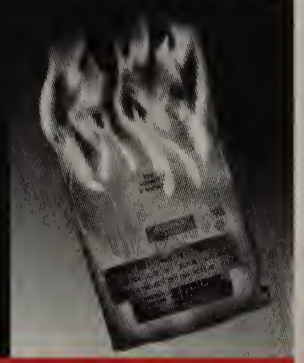

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by David Pogue

Differently Cabled

A CABLE MODEM ISN'T JUST AN EXPENSIVE GADGET—REALLY, IT'S NOT

I TRY NOT TO BE A BLEEDING-edge, early-adopting gadget freak, I really do. Yes, I admit that I bought an original Newton, and an early digital camera, and the very first Pilot organizer. But I'm not an addict—no way. I can stop any time I want. So when I learned that my area was to be the lucky recipient of a cable-modem trial, you can imagine my inner struggle.

A cable modem is one of those futuristic Internet technologies that promises to be 100 times faster than a normal modem. Only 350,000 were installed in the United States by the end of 1998, mainly because so few cable-TV companies offer them.

On one hand, the $35 monthly fee seemed steep, especially since I was already paying $20 a month for my Internet account and $25 for a second phone line. On the other hand, *Macworld* hasn't written much about this important new technology; I could get a cable modem as a noble journalistic experiment, making the financial sacrifice for the good of the Mac community. (Can you say "tax deduction"?) In all, I must have weighed the pros and cons for a good four seconds before calling to sign up.

Three technicians came to set up the thing, a black box about the size of a 1980s-era external hard drive. One end connects to your cable-TV jack (which I had to have installed near my desk—another $100 sacrifice in the name of journalistic pursuits). The other end connects to your Mac's Ethernet jack.

With my first e-mail, I discovered the greatest cable-modem benefit: you're spared the usual 90 seconds of dialing, connecting, and modem shrieking. You're online instantly; you're *permanently* connected to the Internet, 24 hours a day.

I yelled downstairs for my wife and dog to come watch my first attempt at turbosurfing the Web. But after they'd gathered around the screen, I was horrified to discover the dirty little truth about cable modems: they don't, in fact, make Web surfing much faster. I clicked on a link—and waited. Twelve seconds for honda.com, 23 for weather.com, 24 for Macworld.com. My jaw hung open in disbelief. Where was the 100-fold acceleration? "Neat, honey," my wife reassured me before heading back downstairs. The dog was even less impressed.

The problem: even if your pipe to the Internet is a fire hose, the computers on the other end still dish out Web pages with a teaspoon. Instead of waiting for my Mac to receive each page, I now wait for the other end to send it.

The problem isn't quite as bad in the wee hours, when my neighbors aren't sucking away my bandwidth by using their cable modems or watching CNN. Still, I was bummed. "Up to twice as fast at certain times of day" wasn't quite the advertised 100× speed bump. Nor was *uploading* any faster; TV's cables are designed to carry data into your home, not out of it.

On the other hand, in my experience, downloading files with a cable modem is, for some reason, astonishingly fast. My first 3MB download wrapped up in under a minute—about 50K per second. You start to feel as though the Internet is one whoppin'-big external hard drive. Suddenly Internet video isn't a jerky, postage-stamp–size mess—you can actually watch TV-style video in a three-inch window without waiting.

It got better. One morning it hit me: I wasn't using my second phone line any more! See? I wasn't an out-of-control spendthrift gadget freak at all. I could cancel my second line *and* my ISP account, saving all kinds of money.

Furthermore—hold on a sec—no phone line, no modem. Why not sell my modem? And with no modem, my Mac's precious modem port was suddenly free to accommodate my PalmPilot cradle full-time. Yep, things were improving quickly around the Pogue Mac.

There was only one little glitch: how would I go online when traveling? Without a 3,000-mile–long Ethernet cable, my PowerBook clearly wasn't going to reap the benefits of the Internet monster machine back home. The cable company cheerfully offered its dial-up service—a toll-free number that lets me dial in to my cable-modem account from the road, for only $15 more a month plus $9 an hour. Riiiight. So much for canceling my ISP.

Still, here's how I look at it: I'm saving six minutes a day in connect/disconnect time. If my time is worth $25 an hour, that's $912.50 a year my cable modem saves me. And if that sounds like a gadget freak trying to justify another high-tech purchase, well, you're probably right. I promise to get rid of the thing—just as soon as my satellite-dish modem comes in. m

DAVID POGUE (www.davidpogue.com) is a co-author of *Macworld Mac Secrets*, fifth edition (IDG Books Worldwide, 1998).

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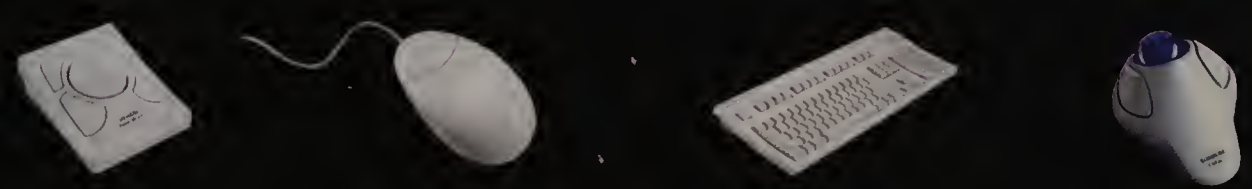

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